

Oracle Fusion Cloud HCM

HCM Extracts

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HCM Extracts

24D

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1 Working with HCM Extracts

Introduction to HCM Extracts

This topic introduces ways of developing outbound integrations from Oracle HCM Cloud.

These include:

- HCM Extracts
- Oracle Business Intelligence Publisher (Oracle BI Publisher)

HCM Extracts

The main way to retrieve data in bulk from Oracle HCM Cloud is by using HCM Extracts, a tool for generating data files and reports.

HCM Extracts has a dedicated interface for specifying the records and attributes to be extracted. With this tool, you can:

- Identify records for extraction using complex selection criteria.
- Define data elements in an HCM extract using fast formula database items and rules.

You manage HCM Extracts either in the Data Exchange work area or using the Checklists interface in the Payroll work area. Alternatively, you can run extracts using the Flow Actions Service web service from outside Oracle HCM Cloud. This feature enables you to automate the outbound extract as part of an overall integration flow.



HCM Extracts Output Formats

Using the built-in integration with Oracle BI Publisher, you can generate extracts in various formats, including CSV, XML, Microsoft Excel, HTML, RTF, and PDF.

You can download the raw hierarchical XML from a completed extract using the Extract Actions Service web service. Alternatively, you can download the formatted BI report (for example, the CSV file) using the BI ScheduleService. In both cases, the output is streamed in a byte array. Therefore, any orchestration mechanism must handle this output, possibly by means of wrapper code.

You can also generate an HCM Extract without specifying an output format at the design stage. Later, you can generate a BI report based on the extract using either Oracle BI Publisher or the BI ReportService. This technique uses a dedicated BI data model that interfaces with the generated HCM Extracts XML.

Oracle BI Publisher

Oracle BI Publisher supports both scheduled and unplanned reporting, based on either predefined Oracle Transactional Business Intelligence analysis structures or your own data models. You can generate reports in various formats. To use Oracle BI Publisher for outbound integrations, you generate reports in a format suitable for automatic downstream processing, such as XML or CSV.

Extract Components

The HCM Extracts feature is a flexible tool for generating data files and reports. This topic covers how you can use the extract components to define what information you want the application to extract and report on.

It also explains how the application displays, formats, and delivers the information.

Extract Definitions

An extract definition refers to the complete setup of an extract, that consists of extract data groups, criteria, records, attributes, advanced conditions and output delivery options. An extract definition consists of:

- One or more extract data groups, depending on how many logical entities you want to extract.
- One or more extract records depending on how many groups of information you want to collect.
- One or more attributes depending on how many individual fields of data you want to collect.

You use HCM extracts to extract, archive, transform, report, and deliver high volumes of HCM data from the Oracle Fusion HCM database. You can generate the output in the following formats:

- CSV
- XML
- Excel
- HTML
- RTF
- PDF

You can distribute the extracted information by email, FTP and other delivery modes. Some common examples of extracts are: PDF paystubs delivered to employees' mailboxes, payroll or benefits data transferred to third-party service providers, HR and talent data exchange between Oracle Fusion and legacy applications, for example in a coexistence scenario.



Data Groups

Extract data groups represent a business area or logical entity, for example person, assignment, or benefits. The application uses this information to retrieve the database item groups. You define one data group as the primary or root data group and this data group is the starting point of the data extraction.

Extract data group connections capture the association details between the current data group and the parent data group. The data group connections form the hierarchical relationship among the data groups.

You can define a set of filtering conditions the application must perform on an extract data group using the extract data group criteria. You specify the criteria conditions using an expression or fast formula.

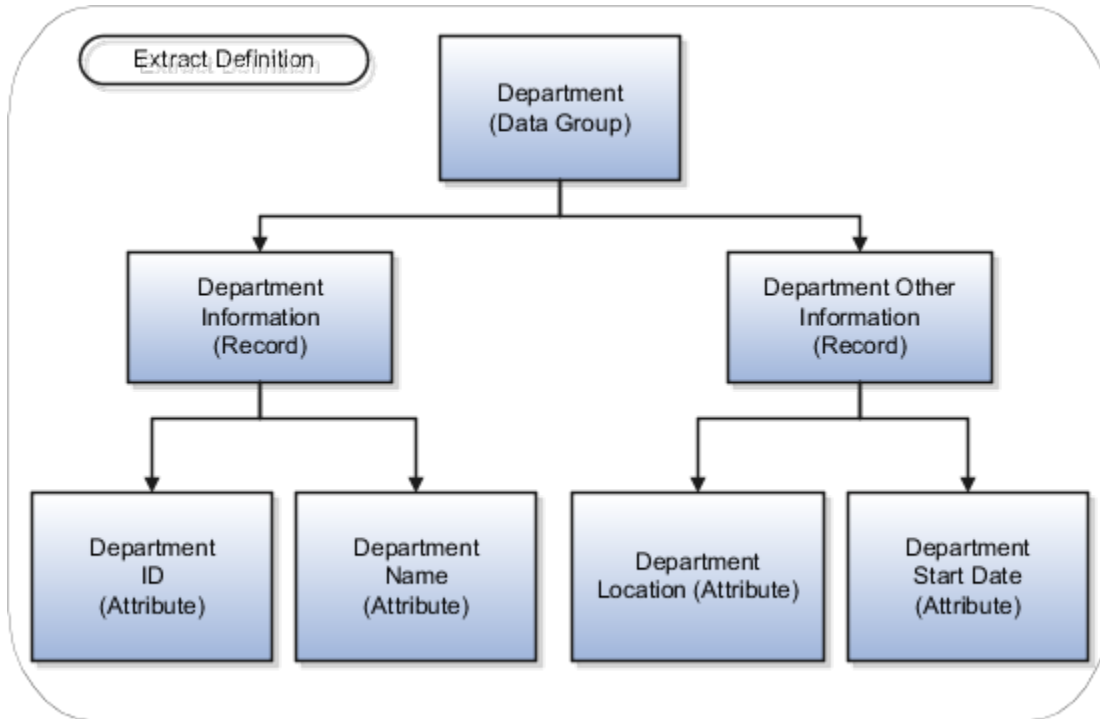
Extract Records

Extract records represent a grouping of related data or a physical collection of all fields required in the extract. For example, the Employee data group can have records such as Basic Details, Pay Details, Location Details, and Primary Contact. An extract record is a collection of attributes which you can organize in a required sequence. For example, if

a data group has 3 records, then you can specify the sequence in which the application processes the records. You can also select the next data group to identify which data group the application processes next.

Attributes

Attributes are the individual fields inside the extract record. An attribute is the lowest attribute level of a HCM extract and represents a piece of information, for example, person first name, person last name or person date of birth. This figure shows the hierarchy of information within a data group definition.



Threading Database Item

A threading database item is a unique identifier for a given user entity to uniquely identify an extracted record. Configuring threading database items makes the comparison and identification of changes in Changes Only extract runs more efficient. You can define one threading database item at the root data group or at any child data group level.

Conditional Actions

A conditional action identifies the action to perform, and optionally, print a message based on the outcome of a conditional expression or a predefined fast formula. Conditional actions are applied on the extracted data similar to criteria conditions that are applied before extraction. Actions and messages are predefined in lookups, and you can add your own messages by creating new values for the lookup.

When a condition is satisfied, you can use this feature to perform certain predefined actions. For example, you can exclude employees that satisfy a condition, such as all employees from a predefined country. You can also configure this feature to raise a warning when an employee's salary is blank or beyond a specific level.

Note: We strongly recommend users to avoid using conditional actions which can adversely impact the runtime performance of an extracts run.

Exclusion Rules

You can exclude or override a record that doesn't suit your requirements with your own record by using an exclusion rule. The extract process doesn't process excluded records based on the legislative data group.

Note: We strongly recommend not using exclusion rules as these are extremely difficult to troubleshoot when records get excluded. Alternatively, use BI Publisher templates to handle the processing of conditional actions and exclusion rules.

Related Topics

- [HCM Extract Types](#)
- [How Extracts are Validated](#)
- [Define Extracts](#)
- [Overview of Generating Flexfield Database Items](#)

HCM Extract Types

The type of extract you select decide the purpose of the extract. It also decide the parameters that are automatically generated.

For example, if you select the Payroll Interface extract type, then the application creates a changes only parameter, and the other parameters. You can select the extract type on the Extract Definitions page.

This table lists the different extract types and why you select them.

Extract Type	Purpose
Archive Retrieval	Use for reports based on permanently archived data, for example, payslip.
Benefit Carrier	Use for providing data to third party benefits service providers.
Full Profile	Use for complete employee and payroll data archives.
HR Archive	Use for all HR archives.
Large Object	Use for all large data objects.
Recruiting Archive	Use for all recruiting archives.
Payroll Interface	Use for providing data to third party payroll service providers.
Other Payroll Archive	Use for all payroll archives.

Related Topics

- [Large Object User Entities](#)
- [Define Extracts](#)

Overview of Global Payroll Interface Extract

Use the Global Payroll Interface report to extract payroll and employee details, such as the salary and deduction details.

Note: Global Payroll Interface extracts and reports only employee information.

Global Payroll Interface reports historical records for salary, element entries, and bank accounts on personal payment methods. These records are all effective dated records that are effective within the specified extraction window. For all other data, Global Payroll Interface reports the top of the stack record that's effective within the specified extraction window.

You can use Business Intelligence Publisher templates to send the extracted data to the payroll provider. Copy this extract definition to generate a custom flow with the same name as the extract.

You can add custom fields to the extract definition. The extracted data includes global and country specific data. Depending upon the LDG, the application copies country specific data. For example, when you copy a GPI extract definition within an Australian LDG context, global and Australia specific data is copied to the new extract.

For the countries that support a calculation card, if you copy the delivered GPI V2 into the country's LDG, you get both global and data including the calculation card. If the country doesn't support a calculation card, only global data is extracted with the country specific name, address and bank account formats, and so on.

Payroll Interface uses the HCM Extracts infrastructure. All delivery options available within HCM Extracts are available for Global Payroll Interface. For example, the output file can either be sent across through SFTP or using HCM Connect over to prespecified destinations.

Before You Begin

Set up certain elements including license type for country and territory while you configure the Global Payroll interface. Use the **Features by Country or Territory** task to set up **Payroll Interface** as the **Selected Extension**.

Geographies and Legislative Data Group

In the **Setup and Maintenance** work area, use the **Load Geographies for US** task in the Enterprise Profile functional area to load geographies and create the geography structure for each country. Ensure that you have selected the Data Source of either GBG/Loqate or your own provider.

In the **Setup and Maintenance** work area, use the **Manage Legislative Data Groups** task in the Workforce Structures functional area to define the legislative data groups to identify the country and its currency. Define at least one legislative data group for each country and associate it with a PSU to provide the payroll information for workers.

Legal Employer

A legal employer is a legal entity that employs workers. Define the legal entity type depending on the organization structure as follows:

- One legal entity that's also a payroll statutory unit and a legal employer.
- Multiple legal entities which are children of one payroll statutory unit.

Payment Methods

Use the **Organization Payment Methods** task in **My Client Groups** to create at least one payment method for each combination of legislative data group, payment type, and currency. You can also create rules to validate or process the distribution of payments.

When creating a payment method, select the **Payment Type** as **Electronic Funds Transfer (EFT)**.

Best Practices for Viewing User Entity Details

When creating an extract definition, you need user entity details to create data groups. You can search and view the user entity details by navigating to the search page of the View User Entity Details task from the Data Exchange work area. You can also access the User Entity Details UI when you create a data group in the Design tab of the Extract Definitions task.



Watch video

View the User Entity Details

To search and view the user entity details on the User Entity Details page:

1. Click **Navigator > My Client Groups > Data Exchange**.
2. In the Data Exchange work area, click **View User Entity Details**.
3. On the User Entity Details page, enter a keyword or user entity name and its associated attributes.
4. Click **Search**.
5. In the Search Results section, click the user entity link to view the user entity details.

Using the User Entity Details page, you can:

- Review the type of user entity, for example, single row, multiple rows, historic, or effective dated.
- View the database items available in a user entity.
- Validate user entities for use with root data groups.
- Review the contexts used and set by the user entity.
- Review the SQL query the user entity uses.
- Calculate the number of rows in a data set.
- Verify the extracts that are using the user entity.

The following sections detail the information that you can derive on the User Entity Details page.

Review the User Entity Details

In the User Entity Information tab:

- If the value of Valid for Root Data Group is Yes, then the user entity can be used as a root data group. You can also decide if a user entity is valid for use as a root data group, if the value of Multiple Rows is Yes and Context Required is No. For example, the PER_EXT_SEC_PERSON_UE user entity can be used as a root data group, as the value of Multiple Rows is Yes and Context Required is No.

- If a user entity isn't a multiple row user entity, you must not use it as the root data group. If a multiple row user entity sets the contexts required for a single row user entity, the database item groups from the single row user entity are generally included as derived database item groups to the multiple row user entity. For example, the PER_PER_PERSON_DETAILS_UE user entity isn't a multiple row user entity.
- If a user entity is historic, it retrieves data irrespective of the effective date. For example, the PER_EXT_ASSIGNMENT_BASIC_HISTORY_UE user entity retrieves the entire historic details of an assignment.
- If a user entity isn't historic, it retrieves data as of the effective date. For example, the PER_EXT_PAY_EMPLOYEES_V2_UE user entity retrieves Person, Assignment, and Payroll details as of the effective date.

Review the SQL query

The User Entity Query tab lists the SQL query that the user entity uses to extract data. You can review the table structure and aliases which is useful for creating advanced filter criteria. If the user entity is valid as a root data group, you can calculate the rows that the SQL query will return. However, the number of rows returned is an estimate and might not match the exact number of rows the extract will return. The actual extract output depends on the filter criteria, expressions, and fast formulas used in the extract.

Review the User Entity Contexts

The Contexts Set tab lists the contexts that you need to set to use the user entity in the extract. For example, the PER_PER_PHONES_UE user entity requires the PERSON_ID context; therefore, you must set the PERSON_ID context to use this user entity. Generally, the user entities that aren't historic require the EFFECTIVE_DATE context. However, the EFFECTIVE_DATE context is set by default, so you don't have to set this context explicitly. The Contexts Set section lists the contexts that are set by the user entity. For example, the PER_EXT_SEC_PERSON_UE user entity sets the PERSON_ID, ORGANIZATION_ID, and ENTERPRISE_ID contexts that can be used by other user entities.

Verify Extracts Using the User Entity

The Extracts Using User Entity tab lists the other extracts that are using the user entity. If another extract is using the user entity, you can review the extract design to understand how the user entity is being used. You can also copy the extract design and then change it to suit your needs.

Related Topics

- [Can I use a user entity as a root data group?](#)
- [Why can't I find a newly delivered user entity?](#)
- [User Entities in HCM Extracts](#)

User Entities in HCM Extracts

A user entity is a logical entity associated with a data group defined using HCM extracts. This topic describes the often used user entities and the type of data you can extract by using those user entities.

You select user entities in the application when you define a data group.

The following table lists the most often used user entities.

User Entity Name and Code	Description
Person (PER_EXT_SEC_PERSON_UE)	Retrieves all persons across the enterprise and all person related attributes.
Employees (PER_EXT_PAY_EMPLOYEES_V2_UE)	Returns Person, Assignment, and Payroll details as on effective date.
Extract Assignment Basic History (PER_EXT_ASSIGNMENT_BASIC_HISTORY_UE)	Retrieves assignment history as on the assignment effective start date.
Extract Assignment Basic Information (PER_EXT_SEC_ASSIGNMENT_BASIC_UE)	Retrieves assignment data as on the effective date.
Assignments Range (PER_EXT_SEC_ASSIGNMENT_RANGE_UE)	Retrieves assignment history as on the effective date.
Extract Current and Future Persons (PER_EXT_SEC_PERSON_NOW_FUTURE_UE)	Retrieves current and future person details. Specify advanced filter criteria to restrict person types.
Extract Current and Future Assignments (PER_EXT_SEC_ASSIGNMENT_NOW_FUTURE_UE)	Retrieves current and future assignments.
Reset Context (PER_EXT_RESET_UE)	<p>Use the Reset Context user entity in two ways:</p> <ol style="list-style-type: none"> 1. Reset the effective date contexts set dynamically by a parent data group using a runtime input parameter for the effective date. For example, the Extract Assignment Basic History user entity sets the assignment effective start date as effective date first and then retrieves the data, unlike other user entities which use the effective date only. To use the Extract Assignment Basic History user entity to include the historical data but also want to change the effective date, then include the Reset Context user entity to reset this date using input parameters. 2. Set up the Reset Context user entity as the root user entity to be a container or header. For example, the following work structure elements: locations, positions, and legal employers aren't related to each other. To extract all in one single extract, then you can add them as child elements to the Reset Context user entity used as the root in the extract definition. Adding this user entity as the root to these elements enables you to retrieve this data separately because the elements aren't linked to a hierarchy.
Assignment Standard Working Hours (PER_ASG_SEQ_HISTORY_DETAILS_UE)	The function <code>per_extract_utility.get_standard_working_hours</code> selects the standard working hours for a position attached to the assignment, or for the organization, or to the legal entity, in that order.

You can view more details about the user entities using the View User Entity Details task.

Related Topics

- [Best Practices for Viewing User Entity Details](#)
- [Why can't I find a newly delivered user entity?](#)
- [Example of Generating Flexfield Database Items](#)

Large Object User Entities

You can use user entities in HCM Extracts to extract large object (LOB) data. The LOBs are a set of data types that are designed to hold large amounts of data. LOBs store various data such as audio, video, documents, and so on. Storing data in LOBs enables you to access and manipulate the data efficiently in your application.

The LOB user entities extract content that's more than 240 characters, and you can only use the Large Object extract type to extract data from the large object user entities. The limitations for extracting Large Object extract type are:

- It supports only one block in a record.
- It doesn't support Changes Only extracts.
- It supports only the SFTP delivery option.
- It supports only large object user entities.

Here are the 11 user entities that you can use in HCM extracts to extract large objects:

User Entity Name	Code
Job Requisition	IRC_JOB_REQUISITION_LRG_OBJ_UE
Job Requisition Template	IRC_JOB_REQUISITION_TEMPL_LRG_OBJ_UE
Job Offer	IRC_JOB_OFFER_LRG_OBJ_UE
Goals	HRG_EXT_GOAL_LRG_OBJ_UE
Evaluation Participants	HRA_EVAL_PARTICIPANTS_LRG_OBJ_UE
Evaluation Ratings	HRA_EVAL_RATINGS_LRG_OBJ_UE
Evaluation Sections	HRA_EVAL_SECTIONS_LRG_OBJ_UE
Common Notes	HRT_EXT_COMMON_NOTES_LRG_OBJ_UE
Question Responses	HRQ_EXT_QSTN_RESPONSES_LRG_OBJ_UE
Content Library	IRC_CONTENT_LIBRARY_LRG_OBJ_UE
Profile Items	HRT_EXT_PROFILE_ITEM_LRG_OBJ_UE

HCM Extracts doesn't store the files that you transfer to the SFTP hosts using the SFTP configuration. You can review these files only from the remote directory, where the files are delivered.

Related Topics

- [Best Practices for Viewing User Entity Details](#)
- [Why can't I find a newly delivered user entity?](#)
- [Define SFTP Configurations](#)

HCM Extracts Templates

Use the predefined templates to quickly set up extracts. The following table lists the templates that are available for different Extract types:

Extracts Type	Template
Payroll Interface	Global Payroll Interface
Other Payroll Archive	Calculation Card Report

These templates enable you to define your extracts by choosing from a comprehensive list of data elements. Thus, selecting the list of objects you need for your integration will automatically build the Extracts definition. You can choose the list of attributes and select predefined filter criteria for various data elements. For example, when you select address data element, you can choose the filter criteria to only select work address based on the address types that you've defined in your implementation.

After you select the data elements and the filter criteria, your extracts definition is complete. You can move to the final step of defining the delivery options to complete the design process.

The extracts defined using a template as the source, is like any other Extracts that you define. You can add data groups and data elements to this newly defined extract to include more attributes according to your requirement.

Predefined Extracts

HCM Cloud has other sample extracts that are predefined. Unlike the templates, where you can select a subset of data elements, you can't edit the predefined extracts. You can make a copy of the predefined extracts and work on the copy to update the extract to your requirements.

The Work Structure and Worker extracts are the examples of predefined extracts. The Work Structure extract generates details of business units, legal entities, departments, grades, jobs, locations, and positions, while the Worker extract generates details of person names, phones, emails, national identifiers, address, legislative data, accruals, absences, work relation, work term, assignment, work measure, supervisor, and salary.

You must not run the predefined extracts directly. Make a copy to run these extracts. When copying and using these predefined extracts, verify the following before extracting data according to your requirements:

- Define filter criteria. For example, to extract data related to specific locations, include an expression or fast formula in the data group filter conditions.
- Remove data groups that aren't required for your integration requirement. For example, you might choose to remove positions data group from your extracts that you copied.
- Review the details to ensure the data groups, records, and attributes that you've included meet your requirements.
- Generate and compile the fast formulas that you've used and validate the extracts design.
- Refine the parameters to define the default values, if any.

Using Work Structure and Worker Extract Templates

To use the Worker or Work Structure extract templates:

1. Copy the Worker or Work Structure extract definition to create a new extract.
2. Update the copied extract.
3. Generate and compile fast formulas.
4. Validate the extract design.
5. Refine the parameters.

Related Topics

- [Define Extracts](#)

Define Extracts

This example shows the steps required to create an extract definition.

Before you create an extract definition, you should understand the following details:

- Information that you want to extract.
- Structure in which the data must be extracted.
- How you want to deliver this data (including file format, delivery mechanism, and frequency information).

FAST Bank is a global organization with subsidiaries all over the world. As part of an external business reporting requirement, FAST Bank is required to extract the department and employee details (grouped by department) across the entire company. This information must be sent to a third party in an XML file and to HR Managers in a PDF file using email. The following table summarizes the key decisions in this scenario:

Decisions to Consider	In This Example
How many extracts do I create to produce this type of report?	You create one extract definition to define a headcount report.
How many data groups do I create?	There are 2 functional groups of information, therefore you create two data groups, one for the department and one for employees.

Decisions to Consider	In This Example
How many records do I create?	You decide the number of records based on the subgroup of attributes within a data group. In this example, you create two records for the department data group: <ul style="list-style-type: none"> • Department Details • Department Summary You create one record for the employees' data group: Employee Details.
How many attributes do I create?	You decide the number of attributes based on the specific information required for that report. Create the following attributes for the Department Details record: <ul style="list-style-type: none"> • Department Name • Department Location For the Department Summary record, create the following attributes: <ul style="list-style-type: none"> • Record Code • Report Date • Employee Count For the Employees Details record, create the following attributes: <ul style="list-style-type: none"> • Full Name • Gender • Date of Birth • Salary • Bonus • Tax Rate
Do I create any fast formulas?	You can use fast formulas at the following levels: <ul style="list-style-type: none"> • Extract Criteria level to decide certain conditions. • Extract Rule level to derive attribute values. • Extract Advanced Condition level to specify complex conditions. • Extract Record level to automatically generate formulas using the Generate Formula option.

Create an Extract Definition

1. On the Extract Definitions page, click **Add > Create New** to open the Create Extract Definition page.
2. Select **HR Archive** and enter 01-Jan-2000 as the Session Effective Date. The session effective date is an effective start date that applies to all date-effective interactions in the current session.

Field Name	Entry
Name	FAST Bank Extract

Field Name	Entry
	<p>Note: The application uses this name to generate the XML output file.</p>
Start Date	01-JAN-2010
Consumer	Undefined <p>Note: Selecting Report in the Consumer field indicates that the extract is used for reporting purposes and that the data isn't interfaced with any external applications.</p> <p>Note: The Consumer field doesn't appear for the extract type Archive Retrieval.</p>
Additional Details	HR Manager <p>Note: The Additional Details field doesn't appear for the extract type Archive Retrieval and when you select Report in the Consumer field.</p>
Changes Only	No

Note: In the Consumer field you can include the consumer name or the external application to which the data generated by the HCM Extracts is sent to or interfaced with. Also, you can add details in the **Additional Details** field to capture the names of applications or consumers. The Consumer field has a list of values. If the application or consumer name isn't found in the list, you can provide the name in the **Additional Details** field. If you've a predefined extract that can be used as a template, select it from the **Source Template** list.

Note: Capturing the consumer name or the external application to which the data is interfaced provides information related to integration patterns and requirements from customers. This information can help Oracle identify common integration patterns and deliver predefined templates, thus simplifying the Extract creation and definition process.

3. Enter FAST Bank Extract as the name of the extract definition. The application automatically creates the tag name based on the extract name and uses this name to generate the XML output file.
4. Click **OK**. The application saves the extract definition and automatically generates the parameters based on the type of extract. The parameters control the output of an extract.

Configure Effective Date Defaulting Rule

When extracts are scheduled, the Effective Date parameter, which is a required attribute, needs to be specified for defaulting appropriate values. For example, running an extract daily will require passing the effective date in context to the date on which it's run. To configure the effective date rule:

1. Open the extract for which you want to specify the Effective Date parameter.
2. In the Define tab, go to the Parameters region and select **Advanced View** from the Show list.
3. Select the value from the Parameter Basis list.
4. Click **Save and Close**.

Rename Extract Definitions

You can rename an extract when you want to import or migrate a later version of the extract with the same name. Renaming will help references in external applications remain unaffected, while you can update the extract with a later version.

1. In the Extract Definitions page, click **Actions > Copy or Rename**.
2. Select **Rename** and enter the extract name.
3. Click **OK**. After renaming the extract, ensure that you run a new baseline if your extract is incremental.

Related Topics

- [Guidelines for Delivering Extracts](#)
- [Extract Components](#)
- [Define the BI Publisher Template in HCM Extracts](#)

Create Data Groups and Extract Data Group Connections

As part of the Define Extracts process, you need to create two data groups: one for the department and one for employees. You also need to create extract data group connections.



Here are the steps:

1. Click the **Design** tab to create the data groups and records.
2. Create the root data group with the following information:

Field Name	Entry
Name	Departments
Tag Name	Departments
User Entity	PER_EXT_SEC_ORGANIZATION_UE
Threading Database Item	Extract Organization Business Group ID

3. Click **Save**.

4. | Note: The **Enable Object Snapshot** option appears only for the root data group.

Select **Enable Object Snapshot** to allow object snapshot support through the REST service. Selecting this also enables the object snapshot key attribute. **Object Snapshot Key** attribute is derived from the Threading Database Item (Extract Organization Business Group ID).

For details on Object Snapshot REST API, see Object Snapshots REST Endpoints in REST API for the Oracle HCM Cloud guide.

5. Click **Add** to define a new data group.

6. Complete the fields to create a new data group, as shown in this table:

Field Name	Entry
Name	Employees
User Entity	PER_EXT_SEC_ASSIGNMENT_BASIC_UE

7. Click **Save** to create a data group for Employees.

8. Select **Employees** in the Object Name tree and define the data group connection details.

9. Click the **Connect Data Groups** tab.

10. Complete the fields to create a data group connection, as shown in the table:

Field Name	Entry
Parent Data Group Database Item	Extract Organization ID
Database Item	Extract Assignment Department ID

11. Click **Save**.

What to do next

Define the data group filter criteria for each data group by selecting the **Filters** tab.

Defining a set of filtering conditions lets you restrict the data extraction. The application uses these conditions to perform the extraction on the extract data group using the extract data group criteria.

You can specify the data group filter as an expression or as a fast formula, and you can choose one or both. You can build criteria using the available database items, parameters, and operators (conditional and logical). The filter criteria become efficient as HCM Extract appends it to the User Entity SQL at the time of execution. If you can't specify the criteria as an expression, then you can place logic inside a fast formula and include this in your definition. Fast formulas return values of Y or N to indicate whether you must extract the record or not. If both criteria and formula are specified, then both conditions are applied.

Create Extract Records

As part of the Define Extracts process, you need to create extract records.



You decide the number of records based on the subgroup of attributes within a data group. In this example, you create two records for the Departments data group:

- Department Details
- Department Summary

You create one record for the Employees data group: Employee Details.

To create the records for the Departments data group:

1. Select the **Departments** data group from the Object Name tree and click **Add > Record**.

Extract records represent a physical collection of all required fields. If a data group has 3 records, then you can specify the sequence in which the application processes the records using the sequence field. You can also select the **Next Data Group** to identify which data group the application processes next.

2. Create two records for the **Departments** data group.
3. Complete the fields to create two records for the Departments data group, as shown in this table:

1. Field	Department Summary	Department Details
Name	Department Summary	Department Details
Sequence	15	10
Type	Detail Record	Detail Record
Process Type	Fast Formula	Fast Formula
Next Data Group	NA	Employees

4. Click **Save**.
5. Select the Employees data group from the Object Name tree and click **Add > Record**.
6. Create one record for the Employees data group. Complete the fields to create a record for the Employees data group, as shown in the table:

Field Name	Entry
Name	Employee Details
Sequence	5
Type	Detail Record
Process Type	Fast Formula

7. Click **Save**.

Create Attributes

As part of the Define Extracts process, you need to create attributes.



You decide the number of attributes based on the specific information required for that report. Create the following attributes for the Department Details record:

- Department Name
- Department Location

For the Department Summary record, create the following attributes:

- Record Code
- Report Date
- Employee Count

For the Employees Details record, create the following attributes:

- Full Name
- Gender
- Date of Birth
- Salary
- Bonus
- Tax Rate

Complete the following steps to create attributes for the records:

1. Select the Department Details record in the Departments data group and click the **Attribute** tab.
2. Click **Add > Database Items** to search and select the following database items:
 - **Organization Name**
 - **Organization Location Country**
3. Click **Save**. An extract attribute is an individual field of a record.
4. Select the Department Summary record in the Departments data group and click the **Attribute** tab.
5. Click **Add** and select the following attributes:
 - **String**
 - **Parameter**
 - **Summary Element**

Complete the fields as shown in the table to create extract attributes and save the record:

Field Name	Attribute Entry	Attribute Entry	Attribute Entry
Type	String	Parameter Element	Summary Element
Name	Record Code	Effective Date	Employee Count
Data Type	Text	Date	Number
Output Column	1	2	3
String Value	999	NA	NA

Field Name	Attribute Entry	Attribute Entry	Attribute Entry
Parameter	Effective Date	NA	NA
Aggregate Function	NA	NA	Count
Aggregate Record Name	NA	NA	Employees Employee Details

6. Select the **Employee Details** record in the **Employees** data group and click the **Attribute** tab.
7. Click **Add > Database Items** to search and select for the following database items:
 - o **Person Full Name**
 - o **Person Gender**
 - o **Person Date of Birth**
8. Complete the fields as shown in this table to create extract attributes and save the record.

1.

Field Name	Attribute Entry	Attribute Entry	Attribute Entry
Type	Database Items	Decoded Database Items	Database item group
Database Item	Person Full Name	Person Gender	Person Date of Birth
Name	NA	Gender	NA
Data Type	Text	Text	Date
Output Column	1	2	3
Decoded Value	NA	'M', '1', 'F', '0', '', '*'	NA

9. Click **Save**.

What to do next

Create more extract attributes for the Employee Details record, as shown in the table:

Field Name	Attribute Entry	Attribute Entry	Attribute Entry
Type	Database item group	Record Calculation	Rule
Database Item Group	Assignment Salary Amount	NA	NA
Name	Salary	Bonus	Tax rate
Output Column	4	5	6
Calculation Expression	NA	Salary * 0.5	NA
Rule	NA	NA	FAST Bank Tax Rule

Define Delivery Options

As part of the Define Extracts process, you need to define delivery options. Select Extract delivery options to define the formatting and layout for the extract definition.



Here are the steps:

1. Select the **Deliver** tab and then click **Add** to define the delivery options.
2. Enter the delivery option name and type. Complete the fields for the delivery options, as shown in this table and click **OK**.

1.

Field	Value	Value
BI Publisher Template	ReportLayout	EFTLayout
Output Type	PDF	EFT
Delivery Type	Email	FTP
Delivery Option Name	Email to HR	FTP to 3rd Party
Output Name	HeadcountReport	EFTReport

3. Define further information for each delivery option in the Additional Details region. Ensure you enter the more information such as, the server, user name, and password for the FTP delivery type.
4. Click **Validate** to review the extract definition setup. Review the validation messages and ensure the structure is valid.
5. Select **Export XML Schema** to download the XML Schema Definition (.XSD) file for this extract setup. This exported file contains the structure of the extract definition: the data groups, records, and attributes.
6. Click **Done**.

Preview an Extract

Previewing the extract definition lets you to verify the output structure of a sample data set by providing specific parameter values for defined parameters, if any. After validating the Extract definition, preview the Extract design before submitting it.

1. Open the extract that you want to preview and go to the **Preview** tab.

Note: Preview option is available only for user-defined extracts. It isn't available for predefined extract definitions.

2. Enter the values in the Parameters section. To gather more diagnostics of the extracts run, run the Extracts with **Debug** set to **Yes** under the Diagnostics section.

3. Enter a value in the **Threading Object ID** field to extract data for a specific threading database item defined for the Extract. Leaving the **Threading Object ID** field blank extracts random sample data.

Note: **Threading Object ID** appears only for extracts for which threading database item is defined.

Note: It is recommended to define extracts with threading database item for improved efficiency.

4. Click **Preview** to start the preview process.

Note: Preview button is enabled only after you validate your extract definition.

5. Click **Download** to download the sample XML output generated to build your BI Publisher templates. It also downloads the log file that you can use for troubleshooting.

Submit an Extract

An extract definition automatically creates an extract process (payroll flow) with the same name as the extract. The extract process enables you to define an execution sequence of multiple tasks, including before and after tasks.

Before you start

Preview the output structure to verify the Extract design.

Here's what to do

1. On the Extract Definitions page, select the **FAST Bank Extract** process and click **Submit Extracts**.
2. On the Submit Extract Instance page, enter the FAST Bank Extract instance name.
3. Enter **Effective Date** to identify the records that are eligible for extracts. The effective date is used by all date effective user entities delivered by HCM Cloud.
4. You can schedule the extract, or run it immediately.
5. Click **Submit** to review the results of the extract run.
6. The View Extract Results page displays the FAST Bank Extract process instance status.
7. Click the instance name link to view the report output details.

Related Topics

- [How Extracts are Validated](#)
- [Guidelines for Delivering Extracts](#)
- [Define Extracts](#)

Extract Deleted Object Details

Extract the key details of deleted objects using the Event Object Changes user entity, HRC_EVT_OBJ_CHANGES_UE.

The method relies on the data captured using the HCM Events framework. You need to purge this data periodically by using the Purge HCM Event Archive Data process for an improved application response.

After extracting the details, send that information to your downstream applications. To extract the deleted object details, you need to include the filter, Event Object Changes operation type in = ('DELETE', 'DELETE CHANGES', 'ZAP'). This table lists the tracked objects and keys.

Objects	Tables	Primary Key Attributes	Primary Key Columns
SalaryEO	CMP_SALARY	SalaryId	SALARY_ID
EvaluationEO	HRA_EVALUATIONS	EvaluationId	EVALUATION_ID
ProfileInterestEO	HRT_PROFILE_INTERESTS	ProfileInterestId	PROFILE_INTEREST_ID
ProfileKeywordEO	HRT_PROFILE_KEYWORDS	ProfileKeywordId	PROFILE_KEYWORD_ID
Element Entry	PAY_ELEMENT_ENTRIES_F	ElementEntryId	ELEMENT_ENTRY_ID
ApplicantAssignmentDEO	PER_ALL_ASSIGNMENTS_M	AssignmentId	ASSIGNMENT_ID
ApplicantTermsDEO	PER_ALL_ASSIGNMENTS_M	AssignmentId	ASSIGNMENT_ID
CWKTermsDEO	PER_ALL_ASSIGNMENTS_M	AssignmentId	ASSIGNMENT_ID
EmployeeAssignmentDEO	PER_ALL_ASSIGNMENTS_M	AssignmentId	ASSIGNMENT_ID
EmployeeTermsDEO	PER_ALL_ASSIGNMENTS_M	AssignmentId	ASSIGNMENT_ID
NWAssignmentDEO	PER_ALL_ASSIGNMENTS_M	AssignmentId	ASSIGNMENT_ID
NWTermsDEO	PER_ALL_ASSIGNMENTS_M	AssignmentId	ASSIGNMENT_ID
OfferAssignmentDEO	PER_ALL_ASSIGNMENTS_M	AssignmentId	ASSIGNMENT_ID
OfferTermsDEO	PER_ALL_ASSIGNMENTS_M	AssignmentId	ASSIGNMENT_ID
PWAssignmentDEO	PER_ALL_ASSIGNMENTS_M	AssignmentId	ASSIGNMENT_ID
PWTermsDEO	PER_ALL_ASSIGNMENTS_M	AssignmentId	ASSIGNMENT_ID
AssignmentExtraInfoDEO	PER_ASSIGNMENT_EXTRA_INFO_M	AssignmentExtraInfoId	ASSIGNMENT_EXTRA_INFO_ID
AssignmentSupervisorDEO	PER_ASSIGNMENT_SUPERVISORS_F	AssignmentSupervisorId	ASSIGNMENT_SUPERVISOR_ID

Objects	Tables	Primary Key Attributes	Primary Key Columns
AssignGradeStepsDEO	PER_ASSIGN_GRADE_STEPS_F	AssignGradeStepId	ASSIGN_GRADE_STEP_ID
AssignmentWorkMeasureDEO	PER_ASSIGN_WORK_MEASURES_F	AssignWorkMeasureId	ASSIGN_WORK_MEASURE_ID
CitizenshipEO	PER_CITIZENSHIPS	CitizenshipId	CITIZENSHIP_ID
ContactRelationshipDEO	PER_CONTACT_RELSHIPS_F	ContactRelationshipId	CONTACT_RELATIONSHIP_ID
DriversLicenceEO	PER_DRIVERS_LICENSES	DriversLicenseId	DRIVERS_LICENSE_ID
EmailAddressEO	PER_EMAIL_ADDRESSES	EmailAddressId	EMAIL_ADDRESS_ID
ExternalIdentifierEO	PER_EXT_APP_IDENTIFIERS	ExternalIdentifierId	EXT_IDENTIFIER_ID
NationalIdentifierEO	PER_NATIONAL_IDENTIFIERS	NationalIdentifierId	NATIONAL_IDENTIFIER_ID
PassportEO	PER_PASSPORTS	PassportId	PASSPORT_ID
PersonExtraInfoDEO	PER_PEOPLE_EXTRA_INFO_F	PersonExtraInfoId	PERSON_EXTRA_INFO_ID
PeriodOfServiceEO	PER_PERIODS_OF_SERVICE	PeriodOfServiceId	PERIOD_OF_SERVICE_ID
PersonEO	PER_PERSONS	PersonId	PERSON_ID
PersonAddressUsageDEO	PER_PERSON_ADDR_USAGES_F	PersonAddrUsageId	PERSON_ADDR_USAGE_ID
PersonNameDEO	PER_PERSON_NAMES_F	PersonNameId	PERSON_NAME_ID
PhoneEO	PER_PHONES	PhoneId	PHONE_ID
RateValueDEO	PER_RATE_VALUES_F	RateValueId	RATE_VALUE_ID
VisaPermitDEO	PER_VISAS_PERMITS_F	VisaPermitId	VISA_PERMIT_ID

A few things to consider when using the operation types:

- Use the **DELETE** operation type to identify deletes of nondate-effective objects.
- Use the **DELETE CHANGES** operation type to identify deletes of one or more date effective changes for a date-effective object.
- Use the **ZAP** operation type to identify deletes of a date-effective object including the delete of all its date-effective changes.

- Use the **Purge HCM Event Archive Data** process to purge the data periodically and improve the application response. The method relies on data captured using the HCM Events framework.
- Ignore the deleted objects that appear multiple times in the extract results. Multiple events might record one delete and therefore a deleted object might appear many times in the extract results.

How Extracts are Validated

Use the Validate feature in the Extract Definitions task to ensure the data you enter in the Design tab is valid and there are no issues when you submit.



After creating an extract, go to the Validate tab and click Validate. If there are any issues in the extract design, validation messages are displayed.

Validate Extracts

When you validate an extract, the application performs validations on the extract design to ensure that:

- The root data group is defined.
- All non-root data groups are linked to the root data group directly or indirectly (for example, through another non-root data group that is linked to the root data group).
- If a sequence of data groups is defined, then the next data group is also defined for processing.
- All Fast Formulas used in the extract exist and are compiled or valid.
- There are no issues detected during BI Publisher validations.

If the validation is successful, the application marks the extract as valid. However, if the validation fails, the application marks the extract as invalid and submitting the extract results in errors.

Related Topics

- [Do I have to validate existing extracts?](#)
- [Why can't I submit an extract run?](#)
- [Define Extracts](#)

Review Extract Run Details

Using the View Extract Results task, you can review extract run information and troubleshoot extract runs that are unsuccessful or have not produced the expected results. You can use the various filters to search the extract or extract run that you want to analyze.



To search and view the extract run information on the View Extracts Results page:

1. Click **Navigator > My Client Groups > Data Exchange**.
2. In the Data Exchange work area, click **View Extract Results**.
3. On the View Extract Results page, enter the extract instance name or extract name, submission date range, and its process status.
4. Click **Search**.
5. In the Search Results section, click the extract instance name to view the extract run details.

On the extract details page, you can review the following information:

- General information
- Criteria
- Instance details
- Changes Only details
- Extract delivery options
- Diagnostics
- Extract Run Analysis

The following sections detail the information that you can derive from the View Extract Results task.

General Information

The General Information tab displays the extract run details such as the name of the extract and its workflow process name, the extract process submission and completion date, its status, if the extract run is submitted and completed successfully or not, and so on. You can also view the process occurrence state and elapsed time.

Criteria

The Criteria tab displays the parameters set for the extract run. For example, Baseline Only, Changes Only, Process Start Date, Process End Date, Process Configuration Group, and so on.

Instance Details

The Instance Details tab lists the processes and their hierarchy. You can view the process status, start and finish time, and status of the process. You can also download the process log files to help you troubleshoot failed or time-consuming extract runs.

Changes Only Details

Use the Changes Only Details tab to review the change in an attribute from the last successful run. This tab is visible only when the extract is run in the Changes Only mode. You can verify if the Changes Only parameter was set in the Criteria tab. Select the attribute and enter the attribute value to check the change in the attribute from the last successful run.

Extract Delivery Options

The Extract Delivery Options tab displays the output files that you can download if the extract run is submitted and completed successfully.

Diagnostics

The Diagnostics tab displays the bar graph showing the percentage completion of the following phases:

- Preprocessing
- Archive processes
- Root data group
- XML generation
- Formatting in BIP
- Report Delivery

Hover over the bar graph to review the phases that are taking more time.

Extract Run Analysis

The Extract Run Analysis tab displays the line graph comparing ESS jobs, Extract job, and current extract run with other extract instances to identify the phase-wise timing and improve the processing time for the subsequent runs.

Extract Process Configuration Parameters

Extract processing parameters are system-level parameters that control aspects of extract-related processes.

This table describes processing parameters and lists values and predefined default values. These parameters are specific to Extracts.

Parameter	Description	Values
Logging Category	Provides logging configuration to enable troubleshooting when working with your support or development representative. Set values as suggested by the Oracle development team.	Default: NULL. While troubleshooting, use the value GMZFT when suggested by Oracle development.
Maximum Errors Allowed	Determines the number of consecutive errors allowed for the extraction processing without setting the process to error state.	Set the parameter value to 0 to error out even rows and record the process state.
Multithreaded XML Generation for Extracts	Generates XML in parallel using multiple threads to improve process efficiency.	Default: N To enable multithreading, set the value to Y_DEL.
Include Null Values in HCM Extract XML Data	Allows choice to write NULL values in XML. Recommended for use if extract files are large due to XML tags with actual data being NULL.	Y = Allowing null values included in data XML N = Not allowing null values Default: Y
Threads	Determines the total number of subprocesses that are running under the concurrent manager.	Default: 1

Parameter	Description	Values
	<p>Note: Work with your Cloud Operations team to identify your test environment sizing configuration and then determine the optimal value based on the performance requirements and verification.</p>	
Use Bind parameters. Use bind variables during action creation phase.	Enables the SQL criteria during extraction that needs to be evaluated with the bind values depending upon the type of extract.	Payroll Extracts Set to N (Default value)
		Non-Payroll Extracts Set to Y_ALL
		Custom Extracts Set to Y_ALL

Related Topics

- [Payroll Process Configuration Groups](#)

Security Configuration

Users require the following privileges to perform Extract configuration, submit Extract definitions, and access Extract results.

Privilege / Role Name	Privilege / Role Code	Description	Task Flow Access
Manage Data Exchange Work Area	HRC_MANAGE_DATA_EXCHANGE_PRIV	Allows management of the Data Exchange Work Area.	Data Exchange Work Area
Manage HCM Extract Definition	PER_MANAGE_HCM_EXTRACT_DEFINITION_PRIV	Allows configuration of data to be extracted and output in any generic format, such as delineated text or XML.	Extract Definitions
Run HCM Extract	PER_RUN_HCM_EXTRACT_PRIV	Allows running of the extract process and submission of the write process.	Submit Extracts

Privilege / Role Name	Privilege / Role Code	Description	Task Flow Access
			<p>Note: To submit an extract, users will require appropriate payroll flow pattern security profile assigned to them. For more details on payroll flows security profile, see Administering Payroll Flows guide.</p>
Run HCM Extracts Report	PER_RUN_HCM_EXTRACT_REPORT_PRIV	Allows access to the extract data model when running a report.	<p>View Extract Results</p> <p>Note: To view the results of an extract run, users will require appropriate payroll flow pattern security profile assigned to them. For more details on payroll flows security profile, see Administering Payroll Flows guide.</p>
Manage Payroll Flow Pattern	PAY_MANAGE_PAYROLL_FLOW_PRIV	Allows management of Payroll Flow Pattern.	<p>Refine Extracts</p> <p>Note: You will also require appropriate payroll flow security profile to configure the flow tasks for a specific payroll flow in the Refine Parameters Page. For more details on the payroll flows and payroll flow security profile, see the Administering Payroll Flows guide. For details on Refine Parameters, see Flow Patterns chapter.</p>
Download data for Extracts Export; (Role Name)	HCM_EXTRACTS_EXPORT_RWD (Role Code)	Downloads data file to extracts related data.	Data Exchange Work Area

If you have a BI Publisher template for formatting your output, see the Define the BI Publisher Template in HCM Extracts to know the required permissions.

Related Topics

- [Flow Patterns for Extracts and Reports](#)
- [Define the BI Publisher Template in HCM Extracts](#)
- [Flow Security and Flow Owners](#)

Retention Period for Archive Data

Extracts generated archive data is retained for 7 days from the date of archive creation.

Archives generated by full run extracts that are older than 7 days are automatically purged to improve the efficiency of extract runs.

The retention period of 7 days applies to all non-incremental user-defined extract runs (full extracts) that you schedule.

Note: You can remove the output files generated by extracts that are stored in WebCenter Content using the Delete HCM Extract Documents process.

Purge Extracts Archive Information

You can remove redundant archive data, which is older than 7 days, to free up space and improve overall performance in your database.

Use the Business Intelligence Publisher (BIP) report to know the top 20 storage-consuming extracts and basic recommendations for purging to free up space and improve the runtime and operational efficiency of your system. You can find the Purge Recommendation Report in the BIP catalog.

Use the Purge Extracts Archive Data process to remove the unnecessary information.

Note: For significant optimization and runtime efficiency, it's recommended that you run this process for full extracts.

Here's how you can purge the redundant extracts archive information:

1. Select and search Purge Extracts Archive Data job under Scheduled Processes. The archive data includes the associated payroll actions, object actions, and action information rows generated by extracts.
2. In the Process Details page, define the criteria for the purge process by selecting the appropriate values for the process parameters.

Parameter Name	Values	Default Value
Report Mode	Yes/No <ul style="list-style-type: none"> ○ Yes: Provides details of the archive data you want to purge ○ No: Purges the archive data generated by the selected Extract List 	Yes
Extract List	Lists the extracts to purge or generate a report	N/A

3. Click Submit.

4. You can search for the job and check the completion status with any scheduled processes.
5. If you run the process in Report Mode, the output file provides a report including these details:
 - o Extract definition Name
 - o Extract Type
 - o Archive data count
 - o Storage recovered by the purge process
6. Use the details in the report to identify data that you want to clean up from the application.

Note: You can run only one instance of this ESS job at any time.

Purge Extracts Archive using Remove Person Information Process

You can clean-up the extracts generated archive data, when running the Remove Person Information process for an ex-employee, by selecting the 'Extracts Archive' from the list of available business objects.

Purge process relies on the User entities used in the threading blocks and the contexts set by these user entities to determine the archive data for a given ex-employee to be purged. User entities setting any of the following contexts will facilitate associating the archive data to the person number passed to the purge process.

- Person Id
- HR Assignment Id
- Work Relationship Id
- Payroll Relationship Id
- Payroll Assignment Id

Note:

- When extracts is run again for these disposed of ex-employees, any leftover data, might still get reported in the extracts and archived. You should consider excluding these disposed of employees from your extracts run.
- You can run the Purge Extracts Archive Data to purge archive data generated by specific extracts and archives that are older than 7 days.

Related Topics

- [What are scheduled processes?](#)

Delete HCM Extracts Documents in UCM

Delete HCM Extracts generated attachments and documents that are stored in UCM.

You can now purge the HCM Extracts generated attachments and documents stored in UCM that are older than the retention period. Use the Delete HCM Extract Documents process to purge the documents. When extracts are run, following files are placed for various extract runs and delivery options defined.

Extract Type	Delivery Option	UCM Content
<ul style="list-style-type: none"> Customer-defined extracts with 7 days retention period Predefined extracts with a predefined retention period 	BI Publisher (BIP) delivery options: <ul style="list-style-type: none"> Email FTP None 	Files generated and stored as attachments for delivery options other than WebCenter Content and Inbound Interface.
<ul style="list-style-type: none"> Customer-defined extracts with 7 days retention period Predefined extracts with a predefined retention period 	<ul style="list-style-type: none"> WebCenter Content Inbound Interface 	Content generated by WebCenter Content and Inbound Interface delivery options in UCM.

The Delete HCM Extract Documents process cleans up the files described in the table above and uses the following parameters:

Parameter Name	Description	Value
Report Mode	Uses a Yes/No value. <ul style="list-style-type: none"> Yes: Runs the process in Report Mode No: Purges eligible documents from UCM. 	Yes/No Default: Yes
Extract Definition	Lists the extracts to purge or generate a report.	Not applicable.

The following privileges and duty roles are required to run the purge process for the Delete HCM Extract Documents process:

Privilege Name / Duty Role Name	Privilege Code / Duty Role Code
Manage Scheduled Processes	FND_MANAGE_SCHEDULED_PROCESSES_PRIV
Submit a Payroll Flow (Duty Role Name)	ORA_PAY_PAYROLL_FLOW_SUBMISSION_DUTY

Note: The Delete HCM Extract Documents process doesn't purge the Payments, Payroll Archive, and Payslip extract types. To know the defined retention period of predefined extracts, refer the documentation for respective extract type.

It is recommended to periodically clean up the documents generated by Extracts to remove any redundant document. This improves the runtime and operational efficiency of your system.

Extracts Process Diagnostics Report

You can run the Extracts Process Diagnostics Report process to generate the diagnostics report of an HCM Extracts definition or for a specific HCM Extracts process.

This process generates the Extract design time, runtime, data, and changes only extract diagnostics report to:

- View recommendations about an Extract definition design, missing or incorrect design choices, and take corrective actions.
- Identify the phase-wise time and recommendations about an Extract run to improve the processing time for the next runs.
- Identify the anomalies in the extracted data that prevent the usage of generated HCM Extracts XML data by Oracle Business Intelligence Publisher or other publishing tools.
- Debug incremental extract changes with the Changes Only modes.

To submit and run the process from the Scheduled Processes work area:

1. Click **Navigator > Tools > Scheduled Processes**.
2. On the Scheduled Processes Overview page, click **Schedule New Process**.
3. Leave the type as Job, search and select the **Extracts Process Diagnostics Report** process, and click **OK**.
4. In the Process Details dialog box, select the **Scope** and **Scope Value**:
 - For Design Time Diagnostics scope, the available extract definitions are listed as the scope value.
 - For Runtime Diagnostics, Data Diagnostics scope, and Changes Only Diagnostics the extract runs or instances are listed as the scope value.
5. For Changes Only Diagnostics, select the mode category and attribute name and ID.
6. Define the schedule, output, and notifications for the process set, as you'd do for any scheduled process. Set any other options and click **Submit**.

The runtime and data diagnostics can be generated for any extract instance, whereas the design time diagnostics is generated for user-defined extract definitions. After the process is complete and successful, review the log and the process report to know about dependencies, warnings, and potential solutions.

Design Time Diagnostics

The Design Time Diagnostics for a user-defined extract definition provides the following information:

- How to reset the context user entity
- Tips on using threading database item usage for incremental and changes-only extracts
- Considerations for historic user entities in threading data groups
- Delivery options and the associated BIP reports, if any
- Design practices that are commonly seen to impact extracts performance including the usage of advanced conditions, override conditions, and record the sort order

These recommendations can help improve and optimize the Extracts design.

Note: You can also run the process for design time diagnostics from the **Data Exchange** work area > **Extracts Definitions** page. Search for and select an extract definition and click the **Validate** button. In the Execution page, click the **Validate > Run Extended Validation**. The action automatically triggers the process. You can download the results and view the log details.

Runtime Diagnostics

The Runtime Diagnostics for a specific HCM extract provides the following information:

- Parameter values for the extracts run
- Volume of data processed by the extracts run
- Delivery status for the delivery options defined in the extract, including the BIP job IDs and job statuses
- Phase-wise timing of the extracts run includes the start and end time of each of these phases: Archive, XML generation, BIP job process times, and Delivery. This provides an understanding of performance issue and suggests resolution too.
- Tips to improve the process timings. You might want to consider them when updating or improving the extracts design.

Data Diagnostics

The Data Diagnostics for a specific HCM extract data provides the following transformation and parsing information:

- Transformation details such as:
 - Instance name and library used
 - Extract Definition ID and name
 - XML tag name of main block and database item (DBI)
 - Number of processed and error records
 - Status of the transformation, with start and completion time
- Problem descriptions such as:
 - Invalid characters in the output
 - Empty DBI tag name, without threading DBI
 - Error details listing the Object Action ID number, its location, and tag name

Changes Only Extracts Diagnostics

The Changes Only modes in the diagnostics report are used to debug incremental extract changes to generate the current status of the data, compare it with the baseline data from previous runs, and identify anything new and modifications. The modes are:

- **Previous Extract Run:** It is used for basic Changes Only extracts with parameter `CHANGES_ONLY = Y`
- **Object Extracted But Not Expected:** It is used for advanced Changes Only extracts with parameter `CHANGES_ONLY= ATTRIBUTE, ATTRIB_OLD, BLOCK_OLD, Or BLOCK`
- **Object Not Extracted:** It is used for data that was extracted in the past runs but isn't extracted in the current run. You've to provide the threading object ID of the missing object from the earlier run to identify the changes.

- **Record Not Extracted:** It is used when the data record for the marked primary key isn't extracted in the current run. To identify the changes, you've to provide the **Threading Object ID**, select the extract record name, and enter the pipe delimited name value pair (for example: **Extract All Phone Number=6623889833||Extract All Phone ID=300100625351893||**) as key attributes that weren't extracted from the earlier run.
- **Unwanted Record Extracted:** It is used when an unintended record and data elements are extracted to find the intended changes in the record attributes. Based on the attribute changes, the report displays the record status as changed, added, or deleted. To identify the changes in the record attributes, select the **Object Action** attribute and provide the **Object Action ID**, select the record name and enter the name value pair (for example: **Extract All Phone Number=6623889833||Extract All Phone ID=300100625351893||**) as key attributes to find the threading data element and primary key, and do the comparison between the past and current run.

Related Topics

- [Guidelines for Using Different Modes for HCM Extracts](#)
- [User Entities in HCM Extracts](#)
- [Submit Scheduled Processes and Process Sets](#)

OTBI Reporting for HCM Extract Definitions

The following folders are available in the **HCM Integrations Real Time** subject area. Use these folders to create your reports within OTBI and BI Publisher.

HCM Extracts

Folder Name	Description
Extract Attributes	Information related to HCM Extracts attributes, such as name, default, required status, and who created and last updated.
Extract Data Groups	Data group and record details.
Extract Definition	Basic information related to an extract definition.
Extract Delivery Option	Delivery options for an extract.
Extract Parameters	Parameters for an extract.
Extract Runs	Information related to the HCM Extracts that have been run, such as start date, total process time, and status.
Fact - HCM Extracts	Numeric facts about extracts, such as the number of extract definitions and the number of extract runs.
Process Configuration Group	Information about the process configuration group.

FAQs for Working with HCM Extracts

How can I edit a delivered or a seeded extract?

For delivered or seeded extracts, you can't edit the extracts. Make a copy of the extract and change or add a parameter.

How can I enable email bursting?

Here's how you can enable email bursting for HCM Extracts.

1. Create HCM Extract including columns that define how the report will be burst into separate reports.
2. Include the email address where that the report should be sent to for each separate bursting value.
Note: In this example, PersonNumber and Email are used from PER_EXT_SEC_PERSON_UE.
3. Define a delivery option that points to the BIP report. Set the delivery type to E-Mail in the Delivery Option Details.
4. Set the following additional details:
 - o Key: Set it to the bursting column in the report.
 - o E-Mail Address: Set it to the Email column in the report.
 - o From: Set to either a fixed value or an attribute from the report.
 - o Subject: As required.
 - o Message Body: As required.
5. In BIP, make a copy of the **/Shared Folders/Human Capital Management/Payroll/Data Models/globalReportsDataModel.xdo**.

Edit the bursting definition by doing the following:

1. Set the Split By and Delivery By to reference the column used to burst the report. In this example this is: **/DATA_DS/G_1/G_2/FILE_FRAGMENT/JRTestEmail/Person/PersonRec/PersonNumber**.
2. Set the SQL Query to the following:

```
SELECT key key
,TEMPLATE,OUTPUT_FORMAT
,OUTPUT_NAME
,CALENDAR
,'true' SAVE_OUTPUT
,DEL_CHANNEL
,PARAMETER1
,PARAMETER2
,PARAMETER3
,PARAMETER4
,PARAMETER5
,PARAMETER6
,PARAMETER7
,PARAMETER8
,PARAMETER9
```

```
,PARAMETE10
,LOCALE
,TIMEZONE
FROM FUSION.PAY_REP_DELIVERY_DTLS
where payroll_action_id=:payrollActionId
and ext_delivery_option_id=:deliveryOptionId
```

3. Split By and Deliver By fields are List Of Value (LOV) fields, and show predefined values appearing in the LOVs.
4. Click LOV and the text appears as "-- Enter --". After selecting, you can manually enter the required value in this field.

How can I create a changes only extract?

When you create or import an extract, make sure you keep the Changes Only option selected. This option creates an extract that captures the incremental changes only and not a full extract.

The Changes Only option automatically adds the Changes Only parameter to the extract. When you run the extract, you can set the value of the parameter to capture changes. The extract generates the current status of the data, compares it with the baseline data from previous runs and identifies anything new and any modifications.

Remember that you also need to set up threading database details to fully implement the changes only behavior.

What's the Simplified page in HCM Extracts?

The Simplified page is part of the extract process for defining, designing, delivering, and previewing the extract definitions.

The Simplified page replaced the Professional page (Advanced Edit options) to create, edit, and maintain extracts. The Simplified page extract components now help you create extract definitions that define what information you want the application to extract and report on. It also explains how the application displays, formats, and delivers the information.

Related Topics

- [Define Extracts](#)

What's an extract data group connection?

Data group connections enable you to define the master-detail or parent-child relationship between the entities. For example, the Employees and Departments data groups are linked with Department ID.

Related Topics

- [Extract Components](#)

How can I delete an HCM Extract after it has run?

After an extract is created, you can't delete it. Hard delete isn't allowed as the extract-generated payroll flow and was run. You can delete an extract only when there are no flow instances or the flow was never run.

Inactivate the extract so that by default the extract doesn't appear. The search page in manage extracts doesn't list these extracts by default; only active extracts are listed. The payroll flows don't allow inactive extracts to be run, and it would be preferred to not list the flow.

You can search for inactive extracts by using the show filters option in the search page and setting the status filter to Inactive.

How can I default the effective date of a scheduled HCM Extract?

When you schedule an HCM Extract to set the effective date as SYSDATE, the Basis Value needs to be entered on the Edit Task Details screen rather than on the Parameters screen.

There are two places to set parameter basis and basis value for effective date:

- Data exchange > Refine HCM extracts > Payroll flow > Parameters tab.
- Data exchange > Refine HCM extracts > Payroll flow > Tasks tab > Parameter Details.

To set the effective date as SYSDATE, follow these steps:

1. Log in to the application as an HCM Administrator.
2. Navigator > Data Exchange > Refine HCM Extracts.
3. Select the Payroll Flow.
4. On the Manage Payroll Flow Patterns page, go to the Tasks tab, highlight the appropriate task, and click Edit.
5. Click the pencil icon below the tabs (Tasks, Task Sequence, Parameters).
6. Click the Edit pencil icon next to the task that you want to edit.
7. On the Edit Task Details: Basic Information flow, locate the Effective Date parameter and click on that row. The Effect Date: Parameter Details region will now show at the bottom of the screen.
8. In the Effect Date: Parameter Details region, set these parameter values:
 - Parameter Basis = Context Binding
 - Basis Value = System Date

How can I create a custom schedule for an HCM Extract?

Currently by default only daily, weekly, monthly options are provided for recursive scheduling.

If you want to create a custom schedule, you need to create a fast formula of type Flow Schedule and return when next flow has to be run, for example after 5 days.

To create a fast formula:

1. Go to My Client Groups > Show More > Payroll > Fast Formulas.

2. Click the Create icon.
3. On the Create Fast Formulas window, in the Type field, select Flow Schedule.
4. Write a formula to return the number of days.

```
/* ***** FORMULA NAME: Daily Weekday
Schedule FORMULA TYPE: Flow Schedule DESCRIPTION: Formula to return a date time. Returns
NEXT_SCHEDULED_DATE; FORMULA RESULTS: NEXT_SCHEDULED_DATE This is a date time value with yyyy-MM-
dd HH:mm:ss format. *****/ /* Inputs
*/ INPUTS ARE SCHEDULED_DATE (DATE) /* Calculations */ add = 1 /* Get day number for Friday. */
A_FRIDAY = TO_DATE('2012-01-06', 'YYYY-MM-DD') FRIDAY_NUMBER = TO_CHAR(A_FRIDAY, 'D') day_number
= to_char(SCHEDULED_DATE, 'D') if (day_number = FRIDAY_NUMBER) then add = 3 NEXT_SCHEDULED_DATE
=ADD_DAYS(SCHEDULED_DATE, add) /* Returns */ RETURN NEXT_SCHEDULED_DATE /* End Formula Text */
```

How can I enable data chunking for high-volume extracts?

Run the following payroll extracts for larger data sets using the XML Data Chunking feature of BI Publisher.

- Payroll Activity Report for the Latest Process
- Statutory Deduction Register for the Latest Process
- Payroll Register for the Latest Process

Note: You can split large volumes of report output into manageable chunks of XML files, to ease parallel processing and later be merged into a single report. The XML data chunking capability in BI Publisher reduces the time and memory used for processing large data. You can't use this functionality for PDF and text output of the report.

Do the following to enable XML chunking:

1. Use a process configuration group to enable BI Publisher to chunk the high-volume XML extract output.
2. Create a **Payroll Process Configuration Group**. You'll use this process configuration group for running your Extracts and for processing the XML file.
3. Add the parameter **Split and Process large XML output Process configuration to enable BIP to split large XML output from Extracts into multiple chunks to allow for parallel processing and merge after processing**. Set the default value to **Y** and use this process configuration group to run the report.

The process configuration enables BIP to split large XML output from Extracts into multiple chunks, allowing for parallel processing and merging after processing.

Note: Although the output for each chunk is merged into a single Excel workbook, the output for each chunk will be in a separate worksheet in that workbook. Although the XML size at which BI Publisher performance begins to improve significantly by this feature can vary between customers due to extraneous factors beyond the control of the report. It's recommended to turn this feature on for report XML sizes greater than 1 GB.

Related Topics

- [Efficient Processing of Large XML Files in BI Publisher](#)
- [How can I chunk high-volume XML data?](#)

Can I use a user entity as a root data group?

Search for the user entity in the User Entity Details UI. If it's a multiple row user entity that doesn't require any context, you can use this user entity as the root data group.

You can access the User Entity Details UI:

- From the Data Exchange tasks pane.
- When creating a data group in the Design tab of the Extracts Definitions task.

Related Topics

- [Best Practices for Viewing User Entity Details](#)
- [Why can't I find a newly delivered user entity?](#)

How can I cancel an HCM Extract schedule?

From the Checklist Overview tab, search for the extract that was scheduled, select the extract that has been scheduled in the actions menu, and choose the option to cancel it.

1. Go to My Clients Group > Payroll > Flow Submission and Results > View Flows.
2. Search for the extract.
3. Click on the Action link.
4. Select the option to cancel a flow and recurring schedule. After canceling, the user interface status will not change to Canceled, but new extracts will not be triggered.

Note: The cancel action is available to the user who submitted the flow.

If you need to cancel a process with another user other than the one submitting the flow:

1. Log in as a user who has IT security manager role.
2. Navigate to Tools > Scheduled Processes.
3. Search for the scheduled job.
4. In the Actions menu, select Cancel Process.

What's the difference between the Always Display and the Mark as Changed attributes?

You can see the difference between the Always Display and the Mark as Changed attributes when you have a parent child relationship in the extract.

If an attribute is set as Mark as Changed, and a change occurs on the same record, then the application includes this attribute in the output. If no attributes change on the record, but an attribute changes in another record, for example a parent or sibling record, then the application doesn't include the attribute in the output.

If an attribute is set as Always Display and a change occurs on the record or in the hierarchy below the record, then the application includes this attribute in the output. The application includes the attribute even if there are no changes in the attribute's record. If there is a change beneath the record, then it's included.

Related Topics

- [Guidelines for Using Different Modes for HCM Extracts](#)

How can I disable an extract?

You can disable an extract by using the Extract Definitions task in the Data Exchange work area. Search for the extract that you want to disable. Open the extract and change the status of the extract to Inactive.

After disabling an extract, you can't submit the extract run again and records will be deleted when the purge process is run. The previous data extracted by a disabled extract is purged to improve the efficiency of extract runs.

Why can't I find an extract?

Probably because it's a payroll or seeded localization extract which is Legislative Data Group (LDG) enabled and you're looking in the Data Exchange work area. Search for your extract by LDG using the Show Filters option in the Extracts Definitions UI.

You need to use the Submit a Flow task in the Payroll or Data Exchange work area to submit these types of extracts.

Inactive extracts aren't available in the default search either. You can search for inactive extracts by using the show filters option.

Why can't I find a newly delivered user entity?

Probably because the new user entity is delivered after applying the release patch. You need to update and download the user entity information by manually running the user entity data dictionary process.

You can download the **objectsData.txt** and **attributData.txt** files that contain the list of user entities with their database objects and items, respectively. Run the user entity data dictionary process to download these files.

To submit the user entity data dictionary process:

1. Click **Navigator > Tools > Scheduled Processes**.
2. On the Scheduled Processes Overview page, click **Schedule New Process**.
3. Leave the type as **Job**, select the **Generate User Entity Data Dictionary** process, and click **OK**.
4. In the Process Details dialog box, select the report mode:
 - Select **No** to update the new user entity information.
 - Select **Yes** if you want to view the route, database item, and user entity details in a report.
5. Define the schedule, output, and notifications for the process set, as you would do for any scheduled process.
6. Set any other options and click **Submit**.

Related Topics

- [Best Practices for Viewing User Entity Details](#)
- [Can I use a user entity as a root data group?](#)
- [User Entities in HCM Extracts](#)

How can I keep an extract safe from unwanted edits?

Keep an extract locked to ensure no edits are made while the extract is in use. The lock feature can help you avoid situations such as a Changes Only extract being edited while in use and resulting in a full run extract.

Find the **Lock Definition** option and the **Unlock Comments** field on the Define page. The extract definition must be valid before you lock it and you must provide a reason before you can unlock it. Unlock the extract definition if it does require a change by providing a justification or comments that you can refer in the future.

Why can't I submit an extract run?

You can't submit an extract run when:

- The status of the extract is inactive. An inactive extract indicates that it's disabled. To submit an extract run, the status must be Active. Inactive extracts aren't available for submission in the Submit Extracts task.
- The extract is invalid. After creating an extract, if you validate it and there are some validation errors, the extract is marked as invalid. If you try to submit an invalid extract, the process fails and errors are displayed. Resolve the validation errors and validate the extract. Then submit the extract run again.
- If the extracts definition name is different from the associated flow name, you can't submit these extracts from the Submit Extracts UI in the Data Exchange work area.

Related Topics

- [How Extracts are Validated](#)

Why can't I find my inactive extracts?

You can't find the inactive extracts because by default, the search results display active extracts only. To view inactive extracts, use the Extract Definitions task in the Data Exchange work area.

In the Extract Definitions page, select Show Filters, Inactive in the **Status** drop-down list and click **Search**.

If you want the search results to display both active and inactive extracts, select the blank option in the **Status** drop-down list.

Do I have to validate existing extracts?

No. It's not required to validate existing extracts. Extracts that aren't validated are marked as Not Yet Validated. You can submit extracts that aren't validated.

However, if there are issues with the extract design, then errors might occur or the result data might be incorrect. To avoid any errors, ensure that you validate the extract before submitting.

How can I download log files for the extract run processes?

Use the View Extract Results task. Search for the extract and click the extract instance name link in the search results, for which you want to view the extract result details. In the extract details page, the Instance Details tab lists the extract run processes. You can download the process log files to troubleshoot the extract run.

You can review the log files to identify the records that did not retrieve the expected data and to identify time consuming processes.

Related Topics

- [Review Extract Run Details](#)

Can I run a Changes Only extract with successful runs only?

Yes. Use the Include changes from last successful run option to exclude the extract runs that did not complete successfully when you run a Changes Only extract.

Leave the option deselected if you want the application to include archives from both successful and unsuccessful runs when running a Changes Only extract. Run the extract as Changes Only set to Yes for the first time to retrieve all the records. When you run the same extract again with the same option Changes Only set to Yes, it would return only the changed records.

How can I create and run a baseline extract?

Use the Baseline Only parameter in your extract to create a baseline that you can use for all subsequent changes only extracts to compare against.

This parameter can save time when running the extract because it doesn't generate an XML file and it doesn't deliver any output. You set the Display option to Yes or Mandatory for the Baseline Only parameter. It creates a full extract in less time and uses less storage in your application.

Can I create an extract and delete the archives?

Yes. When you create a full extract of data, use the Delete Archive parameter to give you the flexibility of deleting archive and XML files at a later date. Set the Display option to Yes or Mandatory for the Delete Archive parameter.

The application generates the archive and XML files and delivers them to the destination, for example, WebCenter Content. The Delete Archive parameter provides you with options to delete the archives and XML files after the application delivers the extract data to its destination. After the application delivers the output, you have the option to discard the archive data and XML files, therefore reducing storage consumption by deleting these extract archives.

You can choose 'Delete archive information and generated XML' option to remove the archive data and the generated XML files. You can choose 'Delete archive information only' option to remove the archive data and retain the generated XML data, if you choose to retain the XML data for reporting purposes or for future references.

How can I improve the performance of the Extracts run?

There are several options you could try to optimize the performance during such phases.

Improve the performance of your extract runs by using the new Baseline Only parameter. Use this parameter in your extract to create a baseline against which you can run all subsequent changes only extracts against. The baseline only parameter saves time when you run the extract because it does not generate an XML file and it does not deliver any output. It creates a full extract in less time and uses less storage in your application. Use this feature by selecting the Show hidden parameters option, and setting the Display column to Yes or Mandatory for the Baseline Only parameter. Use the Baseline Only parameter when submitting a baseline extract, and if the changes only parameter is set to mandatory, then use the All Attributes option.

Free up storage space in your application and improve performance by using the Delete Archive parameter. Use this parameter when you create a full extract of data, and not for changes only extract. When you run the extract the application generates the XML and archive and delivers the output to the destination. After the application delivers the output, for example the WebCenter Content, you have the option to discard the archive data and XML files, therefore reducing storage consumption by deleting these extract archives. Use this feature by selecting the Show hidden parameters option, and setting the Display column to Yes or Mandatory for the Delete Archive parameter.

Contact the help desk to manually gather the database table statistics for your pod. You might experience slow HCM Extract operations during certain testing phases of your implementation cycle, especially when the application tests bulk data loads at the same time. During regular operations the collection of statistics is scheduled to run weekly. However, if the data volume is high due to bulk data loads, then you should request this process to run manually.

How can I increase the extract output threshold?

When using any delivery type such as None, FTP, Email, the output generated will be stored in UCM only if the generated output file size is less than 10 MB.

However, complete output will be sent to the FTP server or email based on the delivery type selected. Use the appropriate delivery type such as, FTP for storing the complete output file that can be used for further processing.

Do the following:

1. Select Setup and Maintenance.
2. Click the Tasks icon on the right-hand side of the screen.
3. Click Search, and search for Manage Common Lookups. Search for `PAY_ACTION_PARAMETER_TYPE`.
4. In `PAY_ACTION_PARAMETER_TYPE`: Lookup Codes search for `BI_OUTPUT_SIZE`.
5. Add a lookup code to the `BI_OUTPUT_SIZE` to the lookup type `PAY_ACTION_PARAMETER_TYPE`.
6. Go to My Client Groups > Payroll > Payroll Process Configuration.
7. Add parameter name: Maximum BI Output Size for Direct HCM Upload and set Default value as 999999999999.
8. In the Manage Payroll Process Configuration task in Setup and Maintenance, add the above parameter to the Default Group. The value is the count of bytes. So entering a 9999999999999999 should allow a very large file.

How can Extracts definitions be downloaded?

You can download or export an extract definition by navigating to the search page of the Extracts Definitions from the Data Exchange work area.

The downloaded or exported definition will be an XML file that includes the information on the data groups, records and data elements, delivery options defined.

To retrieve the extract definition:

1. Go to **Navigator > My Client Groups > Data Exchange**.
2. In the Data Exchange work area, click **Extract Definitions**.
3. On the Extract Definitions page, search for the Extract.
4. In the Search Results section, click **Actions > Export Extract**.
5. Save the file.

How can I access Extract results?

To access HCM Extract results, you will need the required roles and privileges to access the associated payroll flows.

You create payroll flow security profiles and attach the generated data roles to your user account to access the Extracts results.

1. Log in as an application implementation consultant user.
2. Go to Setup and Maintenance > Manage Data Roles and Security Profiles.
3. Create a new data role or edit an existing data role that is created on either a Payroll Administrator or a Payroll Interface Coordinator job role.
4. Edit the data role and choose the View All Flows for the Flows Pattern Security Profile or a specific profile that you create to access specific flows.
5. Submit the changes.
6. If you created a new data role in step 3 above, assign this data role to the user account to view the extract results.

Why do I get a full extract upon running a Changes Only extract?

There are several reasons why a Changes Only extract runs in a full mode or extracts all data.

Do the following:

- Rollback all the incomplete runs caused due to the forceful cancellation of an extract run. Now, run your Changes Only extract again.
- Select **Changes Only since last Successful Run** in the Extracts Definitions page of the extract and try again.
- Verify if the configured threading database item uniquely identifies the extracted data.
- Avoid including parameters as record elements in your extracts definition. For example, the effective date parameter is unique for each run and if you include it in your definition as a record element, it can result in full extract even when you run a Changes Only extract.

Why can't I see some of my extracts in the drop-down list when submitting extract runs?

From the Submits Extracts page in the Data Exchange work area, you can submit extracts that have the Extracts definition name matching the flow name associated with it.

If Extracts have custom flows created with a name that does not match the Extracts definition name, these can only be submitted from the Submit Flows page.

2 Filtering and Delivering HCM Extracts

Guidelines for Using Different Modes for HCM Extracts

You can create an extract to output data in different modes in the Extract Definitions page. Use modes to extract data that has changed since the previous extract runs.

For example, you can extract employee details whenever there's a change in the employee's location. The processing engine generates the current status of the data, compares it with the base-lined data of the previous runs, and identifies the new and any modifications. The output from such changes-only extract has the incremental data only.

You can manipulate the output in a changes-only extract to either exclude or include certain attributes, regardless of whether the attribute has changed or not. For example, by selecting an option to exclude an attribute from comparison, you can ensure that attribute isn't compared while identifying changes to include in the generated output of the next extract run. Therefore, even if the attribute has changed since the previous extract run, it will not be included in the output. You can also select an option to always include an attribute in the generated output of an extract run, even if the attribute hasn't changed.

Extract Modes

To enable different modes in an extract, you include the `CHANGES_ONLY` parameter and set up threading details in the extract definition. While running the extract you can use the `CHANGES_ONLY` parameter to control the extract mode. For example, to find out if the job name has changed on a person's assignment, set up multithreading database items at assignment level and include the `CHANGES_ONLY` parameter. When you run the extract in the `ATTRIBUTE` mode, the extract compares data from the multithreading level and outputs the incremental changes. You can link the `PER_EXT_CHANGES_ONLY` lookup or the `ORA_HRY_CHANGES_ONLY` lookup to the `CHANGES_ONLY` parameter so that you can select a mode when you submit the extract.

The following table describes the different extract modes, their lookup values and descriptions.

Mode	Lookup Value	Description
N	All attributes	Includes all data in the extract. A full extract is run which produces the full data output at that point of time. The archived data is used as a baseline. Note: The Changes Only extracts that ran only in full extract mode but never ran in Changes Only modes will be automatically converted to full extracts after applying the release patch.
Y	Changed attributes	Compares this extract run with the previous extract runs and by comparing against the baseline (to identify the incremental data), displays the data that has changed only.

Mode	Lookup Value	Description
ATTRIBUTE	Changed and marked attributes	Includes elements that have changed or marked as required
ATTRIB_OLD	Changed and marked attributes with previous values	Displays elements that have changed or marked as required plus their previous value
BLOCK_OLD	Changed, marked attributes, previous data under threading group	Displays the following data under threading data group: Changed data Data marked as required Previous values Parent data group values
BLOCK	Changed and marked attributes under threading group	Displays the following data under threading data group: Changed data Data marked as required Parent data group values

Related Topics

- [Extracts Process Diagnostics Report](#)

Filter Extracts Using Advanced Filter Criteria

Use advanced filter criteria to filter and extract data using complex SQL queries. You can also filter data using expressions or fast formulas. When using expressions, the available operators might not be enough to build complex expressions.

You can use fast formulas to build complex filter criteria. However, using advanced filter criteria can improve the performance of the extract run. To use advanced filter criteria, you must have good understanding of the table aliases and writing SQL constructs.

Extracting Employees on Leave

This example explains how to use advanced filter criteria to extract employees who are going on leave in the next seven days. Managers can use this information to find the list of employees who have approved leaves starting in the next seven days.

1. On the Extract Definitions page, create an extract definition.
2. Open the extract definition you created and select the **Design** tab.
3. Select the Data Group link from the hierarchy, click the **Add** icon and select **Data Group**.

4. In the Data Group section, search the user entity PER_EXT_SEC_PERSON_UE and click **Advanced** to display the User Entity Details window.
5. In the Query tab, review the user entity tables and aliases that you want to use, and click **OK**.
6. In the Data Group section, now select the **Filters** tab to display the Filter Criteria section.
7. Click the **Add** icon.
8. Click the **Edit** icon in the Filter Criteria column.
9. In the Edit Filter Criteria Condition window, create the following expression for retrieving only employees: Extract Person System Person Type = 'EMP'
10. Click **Advanced**. The application converts the expression in the basic mode to the following SQL construct: (pptum.system_person_type='EMP')
11. You can now append new SQL construct by using the EXISTS clause. Entering the following SQL construct will extract employees who are going on approved leave in the next seven days:

```
((pptum.system_person_type='EMP') and EXISTS
(
select 1 from fusion.ANC_PER_ABS_ENTRIES abs
where
abs.person_id = pptum.person_id and abs.start_datetime between
pay_report_utils.get_parameter_value_date('EFFECTIVE_DATE') and
(pay_report_utils.get_parameter_value_date('EFFECTIVE_DATE')+7)
and abs.approval_status_cd = 'APPROVED'
)
)
```

When writing an SQL query to retrieve any parameter value at runtime, use the 'pay_report_utils.get_parameter_value_date('ESS PARAMETER')' function. The ESS Parameter is typically, unless explicitly changed, the capitalized parameter name where any space is replaced by an underscore. For example, the ESS Parameter of Effective Date is EFFECTIVE_DATE.

Note: When you delete the existing filter criteria and create a new one, more than 4000 characters can be accommodated in a SQL query constructed from the filter criteria.

12. To validate the SQL construct for any syntactical errors, click **Validate**.
13. Click **OK**.
14. To verify if the advanced SQL criteria is applied correctly, run the extract in GMZFT logging mode and check the logs.

Related Topics

- [How many characters can the SQL query for the data group filter criteria have?](#)

HCM Extract Formula Types

You can launch the Fast Formulas UI from the Navigator Menu Payroll Calculation work area Clicking on the task Fast Formulas.

The following table lists the different types of formula you can use for extracts:

Formula Type	Description
Extract Criteria	Formulas of this type are listed in the Data Group Criteria Fast Formula list. Use this type to specify complex criteria and to indicate if record should be extracted or not.
Extract Rule	Formulas of this type are listed in the Rule Type Attributes Fast Formulas list. Use this type to calculate and derive the attribute value if based on complex logic or business rules.
Extract Advanced Condition	Formulas of this type are listed in the Record Attribute Fast Formulas list. Use this type to specify complex conditions to indicate if an action should be raised (for example, a log or warning).
Extract Record	Formulas of this type are generated automatically when using the Generate Formula option in Extract Records.

Guidelines for Delivering Extracts

You specify delivery options as part of the extract definition. Delivery option parameters specify the output format, the delivery method (email, FTP), support the file encryption of files held on the Oracle WebCenter Content server (UCM) for processing by HCM Data Loader (HDL) and HCM Spreadsheet Data Loader (HSDL), and other parameters required for integration with the BI Publisher layer.

How Delivery Options Work

HCM Extracts archives the extracted data into result tables and stores it as an XML output in the database. The application transforms the XML output into a formatted output such as HTML, PDF, EDT, or XLS. The formatted output is then delivered through the delivery options you set in the extract definition.

You can convert the raw XML generated by HCM Extracts to a specific format using the BI Publisher templates. The following table defines the key properties that you can use when defining a delivery option.

Property	Description
Delivery Option Name	Specifies the name to identify your delivery option.
Delivery Type	Specifies the delivery type. The available options are Email, FTP, WebCenter Content, Data Loader Interface, Inbound Interface, and None. Note: None can't process large output files. Use this option for test purposes only.
Output Type	Specifies the format of the output file. <ul style="list-style-type: none"> Data - It is the default HCM Extracts format and this option provides an XML Output file. CSV - HCM Extracts supports this option without any other need for BI Publisher templates.

Property	Description
	Any other format from the list of available choices requires a BI Publisher template for formatting and processing in the BI Publisher layer.
Report	<p>Specifies the BI Publisher report that you define for transforming the XML output generated by Extracts to the format of your choice. This is applicable only for output types other than Data or CSV.</p> <p>Provide the complete BI folder path for the report. Ensure that this path matches with the directory structure of the report in the BI Publisher setup.</p> <p>If your output type is Data or CSV, you can leave this property blank.</p>
Template Name	Specifies the template associated with the BI Publisher report. It is required only when you provide a value for the Report property.
Bursting Mode	You can specify the bursting mode when you want the XML output to be split and delivered as separate files. For example, payslips to the individual employees.

Note: When you select the output type as CSV, there's no need for other BI Publisher templates and the files are delivered to either WebCenter Content or to SFTP destination based on your configuration. Any other delivery type such as Email, requires a BI Publisher template.

Use the Required option in the Extract Delivery Option table to specify which delivery options you need to run successfully for the extract run to succeed. For example, use the Required option for critical delivery options such as payroll bursting. If this delivery option fails, then the extract run also fails because it depends on the delivery option completing successfully. You can also use the Required option for any delivery options you deem not critical for the extract to run successfully. For example, deselect the Required option for a delivery option such as an email notification to yourself. If this delivery option fails, then the extract run will complete successfully because it isn't dependent on the delivery option.

Using Delivery Types

The type of delivery you select decides the destination of the extract. Some delivery types require more information.

You can select Documents of Record as the delivery mode to store the output in the database and allow employees to view the output from Document of Records. An example of a document is a payslip. If the XML output is split and burst as separate files, then you can select the bursting node. For example, if you want all employees to receive an email with their payslips, then set the bursting node to Employee_ID.

Select the WebCenter Content delivery type to create extracts with data and send them to Oracle WebCenter Content. When executing the extract, encrypted files uses the public fusion-key to post them to the UCM. You need to generate the Pretty Good Privacy (PGP) key pair on the Security Console. You can download the public key to encrypt files that are inbound into HCM Cloud (for example, data files for HCM Data Loader). To sign these inbound files, you can use your private key, which is verified using your public key in Oracle HCM Cloud. You must have imported the customer public key.

You can also transfer the data manually or use your scripts to your server. For more information, see Oracle Fusion File Transfer Automation and Data Security on My Oracle Support.

For each of the delivery types, you can set up more details to complete the configuration. The following table provides information on the more details required for configuring delivery type.

Delivery Type and Attribute	Description
Delivery Type: FTP Attribute: Configuration Name	Specifies the name of the FTP configuration from the File Transfer Configuration page in the Data Exchange work area. Configuration Name is blank if you've defined the FTP configuration in BI Administration.
Delivery Type: FTP Attribute: Server Name	Specifies the name of the server in case you've defined the FTP configuration in BI Administration.
Delivery Type: FTP Attribute: Remote Directory	Specifies the location of the remote directory to transfer a file to, for FTP configuration in BI.
Delivery Type: <ul style="list-style-type: none"> • WebCenter Content • Data Loader Interface • Inbound Interface Attribute: Encryption Mode	Specifies whether the file generated is to be encrypted or not.
Delivery Type: WebCenter Content Attribute: Encryption Key	Specifies the key to be used for encryption if you choose to encrypt.
Delivery Type: <ul style="list-style-type: none"> • WebCenter Content • Data Loader Interface • Inbound Interface Attribute: Compress	Specifies whether to compress the generated file. You can also specify the order of compression and encryption.
Delivery Type: <ul style="list-style-type: none"> • WebCenter Content • Data Loader Interface • Inbound Interface Attribute: Integration Name	Specifies the name that forms the content ID in WebCenter Content (UCM Content ID). The first 11 characters of the Integration Name suffixed by the process ID of the extract run form the UCM Content ID <first-11-characters-of-the-integration-name><process id> Integration Name can contain only alphabets and numbers.
Delivery Type: Email Attribute: From Email	Specifies the email address of the sender from which you want to email the generated output to the recipient.
Delivery Type: Email Attribute: Email Address	Specifies the email address of the recipient to which you want to deliver the generated file.
Delivery Type: Email	Specifies the free text that's added to the email as the body.

Delivery Type and Attribute	Description
Attribute: Email Body	
Delivery Type: Email Attribute: CC / BCC / Reply-To	Specifies other email-specific configurations.

Define Output File Name

When you create a delivery option for the extract, you can define the output file name by selecting an extract attribute and a date. The application adds this information as dynamic output to the Output Name and translates it internally into code.

The output name consists of the following components:

- Delivery option name (appears by default)
- Extract attribute
- Date

You can add one data element (%de) to form a part of the file name and also add the date of file generation in different formats to the file name. The table lists the date components:

Date Component	Description
%y %m %d	Year Month Date component of the system date
%H %M %S	Hour Minute Second component of the system time
%edy %edm %edd	Year Month Date components of the time in the Effective Date parameter that you provide during the Extract Run
%edH %edM %edS	Hour Minute Second components of the time in the Effective Date parameter that you provide during the Extract Run

Follow the steps to configure the output file, where the formation of the file name with the date and time components is shown in the Output Name attribute:

1. Create a new FTP delivery option.
2. Enter the report and template name in the Basic Information section and change the output type if necessary.
3. Enter the configuration details for delivery type in the Advanced section.
4. In the Output File Name section, select the appropriate attribute and click **Add** to append data element (%de) to Output Name and associate the runtime file name with the selected attribute.
5. If required to add the date components in the output file name, select the required date format.
6. Click **Add** and save the delivery option.

Report Category

You can group delivery options as Report Categories and have extract runs to deliver using specific categories. For example, you can have an Extract with Report Category 1 (FTP and Email) and Report Category 2 (WebCenter Content). When you choose Report Category 1, the output is delivered through FTP and Email.

Use the Report Category option in the Extracts Definition page to create the categories. This option appears only in the Advanced Edit Mode of the Extracts Definition page.

Note: It isn't recommended to use multiple Report Categories.

Related Topics

- [Set up Encryption for File Transfer](#)
- [Best Practices for Delivering Encrypted Data Using HCM Extracts](#)

Define the BI Publisher Template in HCM Extracts

BI Publisher is a set of tools you use to create highly-formatted reports based on data models. With BI Publisher, you can:

- Author, manage, and deliver documents
- Create interactive management reports
- Create highly-formatted, customer-facing documents
- Create government documents
- Create electronic funds transfer (EFT) documents

BI Publisher transforms the extracted data from the database and presents that data in a format of your choice.

This example shows you how to set up a BI Publisher template and create a document in the required format, using the extracted data. You can find BI Publisher using the Reports and Analytics link from the navigator. When the Reports and Analytics page is accessible, you can browse through the catalog using the **Browse Catalog** option.

FAST bank must send an XML file on their employees and departments to a third party and the HR Manager with employee details grouped by departments as a Headcount Report.

The following table summarizes some key decisions:

Decisions to Consider	In this Example
Why do I've to set up BI Publisher?	You set up BI Publisher to format the extracted XML data into the required format and to deliver the report or business document to the appropriate destination.
How does BI Publisher connect to HCM extracts?	You install the Template Builder for Word plug-in.
Do I need a separate license?	No, BI Publisher is included with Core HR.

Decisions to Consider	In this Example

Tasks

1. Creating the BI Publisher Report Template
2. Setting up the Data Model
3. Uploading the Report

Create the BI Publisher Report Template

1. On the Extract Definitions page in the Data Exchange work area, navigate to **Extract Execution Tree** using the **Validate** button.
2. Export the XSD file for your extract using the **Export XML Schema** option.
3. Install the Template Builder for Word plug-in from the BI Publisher Enterprise Home page.
 This plug-in provides sample documents, demos, templates and Template Viewer. Use these samples to help you understand the concepts and to create templates such as EFT and RTF to view the formatted XML output.
4. Open MS Word and find the Add-ins tabbed region to view the Oracle BI Publisher option.
5. Select the Load XML Schema option and load the exported XSD file. You can create a default RTF template using the All Fields option.
 After the XML schema has been loaded, you can arrange the fields and alter the layout, if required.
6. Save the template.

Set up the Data Model

1. Click **Navigator > Tools > Reports and Analytics**.
2. On the Reports and Analytics page, click **Browse Catalog**.
3. On the BI Publisher Home page, click **Create > Report** to select a data model for the report.
4. Select **Use Data Model** to create a report using the existing data model.
5. Search and browse for the data model from the directory and click **Next**.

Note: Use the existing standard **globalReportsDataModel** data model (available at: **/Human Capital Management/Payroll/Data Models/**) for all your reports, unless you've a requirement to burst the output. For example, create a new data model for Documents of Record.

6. Select the Report Editor option and click **Finish** to complete the data model setup.
7. Provide a name and save the report in the following folder: **/Shared Folders/Custom/Human Capital Management/**

Upload the Report

1. Select the Upload option from the Upload or Generate Layout region and enter the following information:

Parameters	Details
Layout Name	RTF Layout
Template File	Select the file name of the RTF template saved on your local drive.

Parameters	Details
Type	RTF Template
Locale	English (United States)

- Save the BI report in the following location: /Shared Folders/Custom/Human Capital Management/. This BI Publisher report template is now ready for you to select in the Delivery Options section when creating the extract definition.
- Verify the permissions for the report (Shared Folders > Human Capital Management > Payroll > Data Models > globalReportsDataModel > More > Permissions) and ensure the report is accessible for the user account (Enterprise Scheduler Job Application Identity for HCM or fusion_apps_hcm_ess_appid) that runs the Extracts process. You can either add full control access to this user or to the BI Consumer Role.

Note: Before including this report in the HCM Extracts definition, test the report to verify the formatting and delivery configuration functions as designed. You can run the report from BI and provide your Extracts run instance name as input parameter to generate the output for verification of the layout and format defined in your BI report.

Bursting as Documents of Record

You can burst the output of HCM Extracts as a document of record (DoR) for specific person records.

- Create a custom data model by creating a copy of globalReportsDataModel from /Shared Folders/Human Capital Management/Payroll/Data Models.
- Save the copied data model in the custom folder /Shared Folders/Custom/Human Capital Management.
- In Bursting properties, edit the copied data model and update the values for the following attributes:

- Split By** - Contains the X-path of a data element, which has a unique value and has the following pattern: /DATA_DS/G_1/G_2/FILE_FRAGMENT/<ExtractTagName>/<DataGroupTagName>/<RecordTagName>/<RecordTagName>
- Deliver By** - Same as Split By
- Bursting query - Use the following query:

```
SELECT key, TEMPLATE, OUTPUT_FORMAT,
       OUTPUT_NAME, CALENDAR, 'true' SAVE_OUTPUT,
       DEL_CHANNEL ,
       PARAMETER1, PARAMETER2, PARAMETER3, PARAMETER4 ,
       PARAMETER5, PARAMETER6 ,PARAMETER7 ,PARAMETER8 ,
       PARAMETER9 ,PARAMETE10 ,
       LOCALE, TIMEZONE
FROM FUSION.PAY_REP_DELIVERY_DTLS
where payroll_action_id=:payrollActionId
and ext_delivery_option_id=:deliveryOptionId
```

Note: Take extra care when editing the above Split By and Deliver By values, as you can't correct the typed content using backspace. There's also no option to see the typed content while typing, neither is there an option to the paste content. If you misspell, you'll need to clear and start over.

- Use the above data model to complete your BI Publisher template and report creation.

5. If you want the XML output to be split and delivered as separate files, in the delivery options that you define in the Extracts Definitions page for your Extracts, define the Bursting node to match with the Split By value defined above.
6. Define the following other details for the Documents of Record delivery type:

Property	Value
Key	Attribute: PersonID
Document Name	<Any name>
Locale	en-US
Person Id	Same path as Split By or Bursting query
System Document Type	<Document Type Code> used by DoR

To disable the bursting feature in the BIP report and deliver a merge output:

- o Select None as the delivery type on the Deliver page when creating a delivery option for the HCM extract.
- o Select Disable in the Bursting field to disable the bursting options associated with the BIP template.

Related Topics

- [Guidelines for Delivering Extracts](#)
- [Define Extracts](#)

Compress Output in HCM Extracts

You can use the compress feature to reduce the size of your output and encrypt your extracts more efficiently. Compressing the extract speeds up large file transfers, uploads, downloads, and uses less disk space.

With the WebCenter Content delivery option, select a compression option that works for you:

- **Yes Compress First.** This is the most efficient way to ensure the extract runs quicker. The compression results in a smaller file, which reduces the overall time it takes to transmit the file to its destination. With this option, the application compresses the file first and then encrypts it.
- **Yes Encrypt First.** Select this option for the application to encrypt the file first and then compress it.
- **No.** This option doesn't compress or encrypt the file.

Best Practices for Delivering Encrypted Data Using HCM Extracts

You can deliver encrypted files using HCM Extracts to Oracle WebCenter Content. You use the WebCenter Content delivery type in the Deliver page of the Extract Definitions task to create an encrypted extract. HCM Extract transfers the encrypted file to Oracle WebCenter Content.

You can then transfer the files manually, or write scripts to perform the transfer. By selecting the WebCenter Content delivery type you can enter more details to ensure the extract is identifiable in Oracle WebCenter Content. For example, specify the integration name, select whether you want to encrypt the file using the encryption mode, and a file name for your reference. This additional setup ensures the document has the correct encryption mode and is stored in Oracle WebCenter Content with a specific file name. For more information, see Oracle Fusion File Transfer Automation and Data Security on My Oracle Support.

Related Topics

- [Set up Encryption for File Transfer](#)
- [Guidelines for Delivering Extracts](#)

Define SFTP Configurations

You can define the SFTP configuration directly from the Data Exchange work area without any need to define them externally in the BIP layer. SFTP configuration that you define can be used in Extracts with support for compression and encryption of data.

By avoiding the BIP layer for the SFTP definitions, it simplifies the configuration and improves the runtime efficiency. However, you can continue to use the SFTP definitions defined in the BIP Administration.

1. From the Data Exchange work area, go to the Data Exchange Configurations region > File Transfer Configurations task.
2. In the Configurations page click Add to create a configuration.
3. Specify the info in the Details, Server, and Security regions.
4. Click Save and Close.

Note: You can only use password-based authentication for your SFTP configuration in Extracts. HCM Extracts doesn't support key-based authentication.

SFTP configurations that you define are available in the Delivery Options section of the Extracts Definitions page. HCM Extracts doesn't store the files that you transfer to the SFTP hosts using the SFTP configuration locally. The files aren't available for download from the View Extract Results page. You can review these files only from the remote directory, where the files are delivered.

Efficient Processing of Large XML Files in BI Publisher

When large XML files are generated by Extracts that are processed and formatted in BI Publisher, processing efficiency can be improved to minimize or avoid failures by using chunking option supported by Extracts and BI Publisher.

The following steps explain the configuration of chunking option for Extracts using BI Publisher formatting option.

Prerequisite: You need BI Administrator privilege to complete the configuration.

1. Under My Clients Group, click Show More in the Quick Actions. Navigate to **Payroll > Payroll Process Configuration**.
2. Edit the process configuration group that you use or create a new process configuration group and add the parameter Split and Process large XML output. Set the default value to Y. You'll use this process configuration group for running your Extracts and for processing the XML file efficiently using chunking in BIP.
3. Navigate to the Extracts Definitions page from the Data Exchange work area.
4. Query your extract definition and ensure a threading DBI is defined for the Extracts.
5. Make sure this threading DBI is also used as one of the attribute or data element in one of the records in the threading data group.
6. Create a new delivery option after the threading DBI is defined and attach the BI template used for formatting in BIP. Existing delivery options that are defined before configuring the threading DBI will not use the chunking option support.
7. Navigate to **BI > Administration > Runtime Configuration > Properties** and set the following properties present under Data Model node:
 - o Enable Data Chunking to True
 - o Data Chunk Size to 100 MB.
8. Edit your BI report and from the Report Properties window for the report, check the property Enable Chunking in the General tab.

You can now use the process configuration group and the Extracts definition with the BI delivery option configured above to use the chunking option in BIP. You'll notice chunking related XML tags are presented in the generated Extracts XML file. You'll also see XML chunks processed by the BIP as separate outputs (interim files) from the Report Job History page in BIP.

Related Topics

- [How can I enable data chunking for high-volume extracts?](#)
- [How can I chunk high-volume XML data?](#)

FAQs for Filtering and Delivering HCM Extracts

How many characters can the SQL query for the data group filter criteria have?

The SQL query for the data group filter criteria is stored as a Character Larger Object (CLOB) type data. The SQL query can have more than 4000 characters when you delete the existing data group filter criteria and create a new one.

Related Topics

- [Filter Extracts Using Advanced Filter Criteria](#)

How can I chunk high-volume XML data?

The HCM Extracts diagnostics enables you to split high-volume XML data into multiple smaller chunks to reduce the time and memory used for processing high-volume data.

Use the XML data chunking feature of Business Intelligence Publisher (BIP) when you face an issue that disables a business-critical process while running reports for large volumes of data.

The XML data chunking process involves the following stages:

1. Schedule the Extracts data chunking process
2. Create a BIP report based on the predefined data model to generate an output
3. Schedule a BIP job to deliver the output remotely
4. (Optional) Automate the Extracts SFTP delivery option to deliver the data chunks

Schedule Extracts data chunking process

1. Click **Navigator > Tools > Scheduled Processes**.
2. On the Scheduled Processes Overview page, click **Schedule New Process**.
3. Leave the type as Job, search and select the **Extracts Process Diagnostics Report** process, and click **OK**.
4. In the Process Details dialog box, under the Basic Options section:
 - o Select **Data Chunking** as the scope for the chunking process.
 - o Select the instance name as the scope value from which you want to chunk the data.
 - o Enter a numeric value indicating the number of required chunk sizes (number of objects in one chunk).
5. Define the schedule, output, and notifications for the process set, as you'd do for any scheduled process.
6. Set any other required options and click **Submit**.
7. Download the report and log and check the number of chunks generated. Generally, the number of chunks generated is based on the chunk size and total objects. ($\text{Total Chunks Generated} = \text{Total Objects} / \text{Chunk Size}$)

Use the following query to know the total number of chunks generated:

```
select count(*) from hry_ext_parse_dtls where transformation_id = (select max(transformation_id) from
hry_ext_transformation where processing_type = 'CHUNKING' and instance_name = :flow_instance_name)
```

The data tables used for data chunking:

- o hry_ext_transformation
- o Hry_ext_parse_dtls

Use BIP to generate and deliver data outputs

1. Click **Navigator > Tools > Reports and Analytics**.
2. On the Reports and Analytics page, click **Browse Catalog**.

3. On the BIP Home page, copy the report associated with the extract definition, and change **globalReportsDataModel** to **DataChunkingDm** data model available in the shared directory (**Shared Folders/Human Capital Management/Extracts/Data Models/**).
4. Enter the name and description of the report and save it in the **Custom** directory. (**Shared Folders/Custom/...**)
5. Click **OK** to open the report pane.
6. Click **View Report**.
7. Click **Action > Schedule** to schedule a report job.
8. In the General tab, enter the values for **Flow Instance Name** and **Chunk Number** parameters.
9. Execute the report for each generated chunk, starting from chunk 1.
For example: If you've 100,000 objects to process and you're using a chunk size of 25000 objects, then 4 chunks will be generated. To generate a report for all objects, you'll need to run the report for chunks 1 through 4 until all 4 chunks are processed.
10. In the Output tab, select **FTP** as the destination type and click **Add Destination**.
11. Select the **FTP Server** from the servers list.
12. Enter the remote directory folder path to deliver the data chunks.
13. Enter a file name for the generated file.
14. Click **Submit** to schedule the report job.

(Optional) Automate delivery option to deliver data chunks

1. Open the extract definition and click the **Deliver** tab.
2. Add a new delivery option with the delivery type **FTP**.
3. The delivery option will keep the same report and template names. Enter the remote directory path and SFTP server name.
4. Delete the **Extract Delivery Mode** additional details created for the newly added delivery option.
5. Validate and save the extract definition.
6. Follow the steps mentioned above to run the data chunking process and provide the delivery option name to trigger automatic delivery to an SFTP server.

Related Topics

- [Efficient Processing of Large XML Files in BI Publisher](#)
- [How can I enable data chunking for high-volume extracts?](#)

How can I create multiple output files in HCM Extracts?

There are multiple approaches to create multiple extract results.

- Run/Schedule Extracts separately for different Legal Entity ID/Legal Entity or other criteria per your requirement.
- If Legal Entities (or other filter parameter) are constant, create separate delivery options and filters to show only records related to different Legal Entity filtering in the RTF/ETEXT template.
- Enable bursting by changing the Extract Results Delivery type when creating or editing a delivery option in the Extract Definitions page. Click Enable in the Bursting to enable the bursting options associated with the BIP template.

How can I set time zones during scheduling of an Extract?

The schedule date and time are displayed in the local time zone (as defined by the Preferences setting.)

To set the time zone preference, follow these steps:

1. From the main page, click the down arrow next to your name.
2. Go to Set Preferences > Regional and select your time zone.

Note: The schedule date and time are stored in the servers as Coordinated Universal Time (UTC). Any dates coming from HCM Extract will be in UTC.

How can I restrict the records to be extracted?

You can define a set of filtering conditions the application must perform on an extract data group using the extract data group criteria. You specify the criteria conditions using an expression or fast formula.

You can specify to data group filter as an expression or as fast formula, and you can choose one or both. You can build criteria using the available database items, parameters, and operators (conditional and logical). The filter criteria will be more efficient as it gets appended to the User Entity SQL at the time of execution. If you can't specify the criteria as an expression, then you can place logic inside a fast formula and select here. Fast formulas return values of Y or N to indicate if you must extract the record or not. If both criteria and formula are specified, then both the conditions are applied.

Related Topics

- [Extract Components](#)
- [Define Extracts](#)

Why is Effective date a required parameter for the Extracts?

HCM Extracts uses the effective date to determine the records that are eligible for extracts.

If the effective start date of a record is less than the effective date and the effective end date of the record is higher than the effective date, the record is eligible for processing by Extracts. Effective date is used by all date effective user entities delivered by HCM Cloud.

Can I view the results of an extract run that have delivery options other than WebCenter Content?

You can use the View Extract Results task in the Data Exchange work area to view the extract run information. You need to use the filters on the View Extract Results page to search the extract or extract run. Click the extract instance name

in the search results to view the extract run details on the extract details page. You can download the extract run results from the Extract Delivery Options tab if the extract run is submitted and completed successfully.

Can I rollback an extract run?

You can rollback an entire extract run using the Rollback option from the View Extract Results UI.

3 Flow Patterns

Flow Patterns for Extracts and Reports

A flow pattern exists for each extract or report process. Flow patterns for extracts and reports typically contain a single flow task and they define the submission parameters.

Use the Manage Payroll Flow Pattern task from the Payroll Checklist work area or the Refine Extract task in the Data Exchange work area to edit flow patterns. You can edit a flow pattern to add additional tasks. Each flow pattern you create must be associated with a security profile. Each flow pattern you create must have a Legislative Data Group.

Checklist and Flow Tasks

When you submit a flow pattern it creates an instance of the flow. For every submitted flow, the application generates a checklist by default.

When you submit a flow, you're taken to the Checklist page so that you can manage and monitor the tasks and other parameters within the flow.

You can also use the View Flows page, and click on a flow to go to the Checklist page of the selected flow.

Here's what the checklist might include, depending on the flow pattern.

- Automatic tasks, such as extracts, reports, and processes
- Manual tasks, such as the Verify Payroll Process verification task, required to complete a flow

Here's what you can do with checklists.

- Monitor the status of the flow tasks
- Manage the flow tasks, such as reassigning tasks, marking tasks as completed, and performing corrective actions
- View task details, such as a list of records processed by the flow

While working on a task in the flow, you can remain on the Checklist page or go to a related page that includes tasks in the flow. For example, while reviewing the results for the Calculate Payroll task, you can go to the related pages to review the person's calculation card or element entries.

What You Can Do on the Checklist Page

Perform these tasks to manage and monitor flows from the Checklist page.

- Manage and track all tasks within the task flow.

For Task Flows with multiple tasks, the Checklist page provides the status summary of the tasks:

- Completed Tasks
- Completed With Alerts

- Critical Alerts
- Pending

Expand the Tasks section and drill down to each individual task and view the task status and take an action specific to the individual task.

The actions available to you when working with a task depends on its status and the status of the tasks that precede or follow it. For example, if a task has completed with alerts, it indicates that the process has completed with one or more records in error status, the process has been rolled back, or marked for retry.

Click on the task to view the process results and drill down to the records that have errors and need correction. After making the corrections, you can come back to the Checklist page and resubmit the task to process the records that were in error.

- Validate a manual task within the flow and mark as complete, so that downstream tasks within the flow can begin.

For example, a payroll manager may review and validate the details of the generated payments register and make corrections if any, before enabling the payments processing task to proceed. The payroll manager must manually set the status of the Run Payments Register task to complete, so that other downstream tasks can be initiated.

- View task status and drill down to the task parameter details.
- Reassign a task to a different owner. Drill down to a task and select the Change Owner task action to change the owner of the task.
- Drill down to the Parameters section to view the flow parameter details.
- Drill down to the Linked Flows section to view flows and tasks linked to the current flow. Click on the flow to view the details of the flow linked to the current flow. Use the Back arrow to return to the current flow page.
- Drill down to the Process Results page to view all messages and errors for a task. Once you have identified the records that have errors, click on the person name to see what the error is, and take corrective action on them. You may have to return to the person's record to correct the errors.
- Drill down to the Process Results page to access output information for a task such as reports and log files.
- Use the Roll Back All option from the Actions menu on the checklist page to roll back multiple tasks within a flow. You don't have to manually select each task to roll back the tasks within the flow.
- Use the Submit Related Flow task action on the Checklist page to submit additional tasks within an existing flow. For more details refer to the 'Submit a Related Flow' topic on the Help Center.

After you have taken appropriate corrective action, you can go back and use the Actions menu and mark the record for retry.

How Tasks Within Flow Patterns are Edited

You can create or copy a flow pattern and then add, delete, or move tasks in the flow pattern. This topic provides examples of edits you can perform to tasks in a flow pattern.

Perform these edits on the Task Sequence tab of the Payroll Flow Patterns page. For extract flow patterns, use the Refine Extracts task.

Edit Tasks

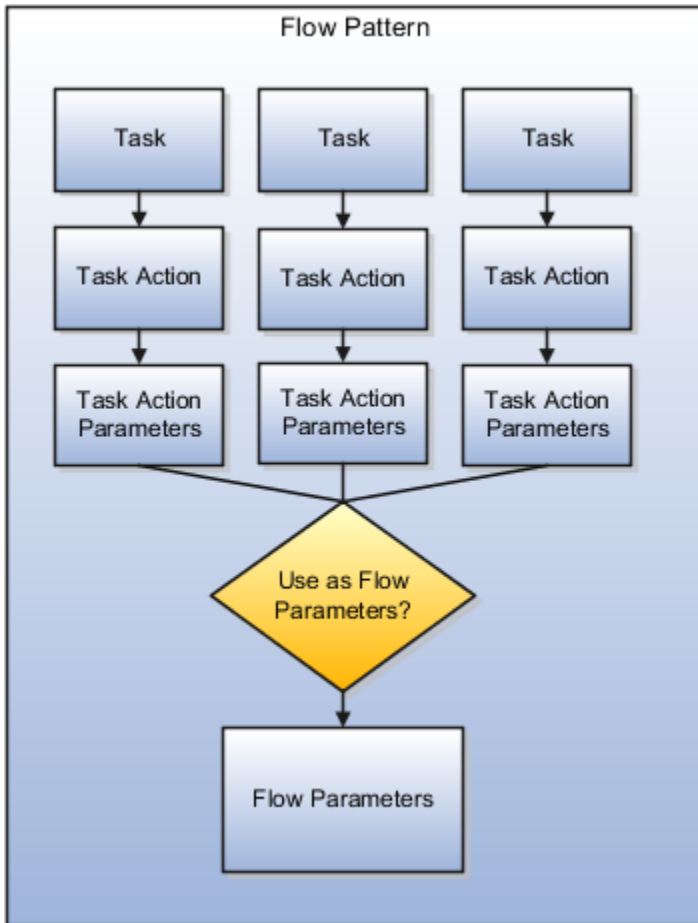
This table lists a few examples of edits you can perform and the probable impact the edits can have on the flow.

Edits	Impact	Examples
Add a task	<p>You add a task to position it as the last task in the activity or task group. Update the task sequence.</p> <p>If you repeat a task, rename it to make clear its purpose on the checklist.</p>	<p>You add a manual verification task after each report. You rename each task with the report name.</p>
Delete a task	<p>When you delete a task you may impact subsequent tasks in the flow that depend on its results. Review the subsequent tasks.</p>	<p>You delete a task. The Parameter Basis of the next task is Bind to Task and its Basis Value is the value of the deleted task. The you must update the Parameter Basis of the subsequent task as required, for example, to Bind to Flow.</p>
Move a task to a different activity	<p>The activity determines the work areas where you can submit the flow patterns you define, and controls how the checklist displays.</p>	<p>You move a task in a payroll flow pattern for a report from the Payments activity to the Statutory activity.</p>
Reorder the list of tasks displayed in a checklist	<p>The sequence specified for the task further determines the task order within an activity on the checklist.</p>	<p>You decide to flatten the checklist sequence to group all the tasks within a single activity.</p> <ol style="list-style-type: none"> 1. On the Tasks page, you confirm that each task belongs to the same activity and task group. 2. You edit each task, specifying a value in the Sequence column on the Edit Task Details Owners and Details page. <p>The lowest number is used for the first task in the checklist. For example, you might specify a sequence of 10 for the payroll calculation task and 20 for the prepayments calculation task. On the checklist, the payroll calculation is displayed before the prepayments calculation task .</p>

Flow Pattern Parameters

Each task in a flow pattern supports task actions, such as submit, roll back, mark for retry, retry, and view. Task action parameters control how the application processes a task and how the task relates to other tasks in the flow pattern.

Flow parameters are a subset of task action parameters. They supply the information required to successfully complete the tasks in the flow pattern.



The values of some task parameters can't be derived or defaulted, and you must make a manual entry. The other parameters are defaulted or are derived. You can add new flow parameters from the list of available task parameters, or update the details of the existing flow parameters.

A parameter is defined in the application database using a Base Flow Parameter Name. If the report parameter name, exposed in the UI at the flow-level, matches the Base Flow Parameter Name, then the list of values are defaulted directly. The Base Flow Parameter Name isn't exposed on the UI.

If required, edit a base flow parameter and rename it. You can see the edited parameter name on the flow submission page when you submit the flow. The base flow parameter name isn't displayed on the UI.

- When you create a flow pattern, review and edit the task parameters for the Submit task actions.
- Before you submit a flow, review and edit the task action parameters and the flow parameters for each task within the flow. Task action parameters control task interactions.

These are the parameter details you can edit.

Display and Display Formats

Use the Display parameters to control the format and availability of the flow parameter on the UI.

Parameters	Purpose
Display	Determines whether the parameter displays on the page when you submit the flow.
Display Format	Identifies the type of data displayed, such as a date or text, or choice list

Display parameters work with other parameters, such as Parameter Basis and Basis Value. For example, most task action parameters don't display the Request parameter because the application obtains the value for this parameter from the context.

When defining your flow parameter, use the Display value options to determine if the parameter should be displayed on the UI and if a parameter value is required when you submit the flow.

Option	Used to
Mandatory	Display the parameter on the UI and it's mandatory for you to enter a value during flow submission.
No	Derive or default the parameter value, the parameter isn't displayed on the UI.
Yes	Display the parameter on the UI, but it's optional for you to enter a value during flow submission.

Lookups and Value Sets

Use lookups and value sets for descriptive flexfields to control and validate the data used in the payroll flow pattern. Select from a list of predefined application lookup values or value sets or ones that you have defined.

This table lists how the lookup values are derived and the corresponding parameter basis you can use.

Lookup Value	Parameter Basis to Use
Entered when submitting a flow	Bind to Flow
The application derives the value during flow submission and presents it. The value is derived from existing tables, such as the value for the payroll statutory unit. During flow submission, you can either use the derived value presented to you or override it.	SQL Bind or Bind to Flow Task or Context Binding
The application derives the value from a Post SQL process	Post SQL Bind

Usage

A parameter can receive information or generate information that subsequent tasks can use. For example, for the Calculate Payroll task, the Payroll Process parameter for the Submit task action generates an output value for the payroll action ID. The Retry task action can use this payroll action ID.

For output usage parameters the parameter isn't displayed and its value is derived using the parameter basis.

Parameter Option	Setting
Display	No
Parameter Basis	<ul style="list-style-type: none"> Bind to Flow, the application derives the value from the flow parameter and then updates the flow parameters table with the output value If you select no value, the output value results from the task's output

Sequence

Sequence indicates the order in which the parameter is available on the UI for you to enter a value. Sequence numbers control the order in which the application processes and displays the parameters. In the case of hidden parameters, they're processed after a required or dependent parameter is processed.

For example, if you have two lookups and the values of the second lookup depends on the first lookup. You must set the first lookup to a lower sequence number than the second one.

Parameter Basis and Basis Value

The parameter basis controls how the application derives the value for the parameter. The basis value further specifies the value the application uses for the parameter.

This table provides list of values to select parameter basis and basis values when you define payroll flows. Also view examples of when you can select them and how the values are assigned.

Parameter Basis	What the Parameter Basis Does	Basis Value Available	Example
Constant Bind or Use Specified Value	Assigns a specific value to the parameter.	Enter the text as a constant or value, when you submit the flow.	Specify a constant if the value is the same for all tasks, such as the payroll statutory unit.
Bind to Context	Derives the value from the context of the current flow instance or the task instance of the flow pattern.	Select flow, task, or the Request. The application automatically generates the parameter value.	<p>If the task includes a Request parameter, bind it to the flow context. Tasks in the flow reference this task using the Request ID generated by the application.</p> <p>Bind the legislative data group parameter to a task parameter that supplies the legislative data group.</p> <p>For example, the legislative data group for prepayments uses the payroll as context, because</p>

Parameter Basis	What the Parameter Basis Does	Basis Value Available	Example
			it's already associated with the legislative data group.
Bind to Flow Parameter	Derives the value from one of the flow parameter values.	Application automatically derives the parameter value.	Bind a parameter to the flow that several tasks share to avoid multiple occurrences of the same parameter.
Bind to Flow Task Parameter	Binds the value to the output of the previous task.	Select a value from the previous task's parameters.	Bind a parameter to a task, such as Retry corrective action. When the flow owner resubmits the task to retry it, the application uses the output of the Submit task parameter.
Bind to Task Parameter	Resolves the value for the task parameter.	Select a value from the current task's parameters.	Bind a parameter to the task if several tasks share a parameter, such as a start date, but one task requires a different date.
No value specified	Stops the application from generating a parameter value when the task executes.	Application generates a blank value.	Not applicable
Post SQL Bind	Calculates the parameter but doesn't display it on the user interface.	SQL statement calculates the parameter value.	Bind a parameter using the Post SQL bind to generate data. For example, use a post SQL process to use the payroll period and payroll parameters entered by you and generate the process date. The payroll and payroll period are mandatory parameters. They have a higher sequence number than the process date, so that the process date derives its value after you enter their values.
SQL Bind	Calculates and displays value on the user interface, prior to submission.	SQL statement calculates the parameter value and display it on the user interface, before submission.	Bind a parameter using SQL Bind For example use SQL Bind to calculate the payment type parameter for the Generate Check Payment task. The application obtains the payment type ID for the check payment record. Use SQL Bind to prompt the task owner to enter a reason for a corrective action, such as a QuickPay.

The Basis Value is related to the Parameter Basis. For example, when the Parameter Basis is Post SQL Bind the Basis Value contains the SQL used for the Post SQL Bind.

Flow Task Start and Due Dates

Use duration dates and notification options in the payroll flow pattern to give flow owners adequate time before a task starts, to prepare and address any issues.

Task Start and Due Dates

Let's look at the duration dates you can enter on the Tasks page of the Manage Payroll Flow Patterns page:

- Start date, the date the task owner should start the task.

Note: The start date applies to notifications only. Enter the flow start date on the Scheduling page when you schedule the flow.

- Due date, the date the task owner should complete the task.

To specify duration dates:

1. Select the flow parameter date to use as the basis for the duration date.
2. Optionally, offset the date by specifying a plus or minus value depending on whether the date falls before or after the duration date.

Notifications

Notifications are error and warning messages to inform the task owner when a task starts or ends. The receipt of notifications depends on the duration dates and their offsets.

1. Specify the notifications the task owner receives.
2. Optionally, specify the number of days before the application automatically deletes a notification from storage.

Use the Manage Payroll Process Configuration task to complete the Notification Expiration Offset parameter.

Examples of Editing Flow Patterns

Review these scenarios to understand how you can edit flow patterns to meet the requirements of your enterprise. Use the Payroll Flow Pattern task or the Refine Extracts task to edit these scenarios.

Update a Parameter to Use a Specified Value

Your payroll uses a single process configuration group named InFusion Consolidation Group A. You want to specify a constant for the configuration group task action parameter and hide the parameter to avoid data entry mistakes. Perform these steps.

1. Query the flow pattern you defined for the payroll cycle.
2. On the Parameters tab of the Payroll Flow Pattern page, edit the Process Configuration Group parameter.

Enter these values to maintain a constant value for the Process Configuration Group task action parameter and avoid data entry mistakes.

Parameter Detail	Value
Display	No
Display Format	Text
Lookup	No value
Usage	Input Parameter
Parameter Basis	Constant Bind
Basis Value	InFusion Configuration Group A

Supply a Reason for a Corrective Action

Your enterprise typically issues electronic funds transfer payments. You defined a flow pattern to issue check payments and you want to verify and track the reason managers issue checks. You can add a flow parameter to capture that information.

1. Query the payments flow pattern you defined.
2. On the Parameters tab of the Payroll Flow Pattern page, Select and Add the Reason parameter to include the parameter as a flow submission parameter. Enter these details.

Parameter Detail	Value
Display	Yes
Display Format	Text
Lookup	No value
Usage	Input Parameter
Parameter Basis	Context Binding
Basis Value	Payroll Flow

Parameter Detail	Value

Add Tasks and Reorder the Task Sequence

Your flow pattern includes the Calculate Gross Earnings process and the Element Results Register Report. Perform these steps to run the two extract reports concurrently, and add a verification task, to simplify the checklist to a single list.

1. From the Data Exchange area, select the **Refine Extracts** task.
2. On the Refine HCM Extracts page, query the flow pattern.
3. On the Tasks tab of the Payroll Flow Patterns page:
 - a. Add the first extract report, specifying the same Activity and Task Group as the Calculate Gross Earnings.
 - b. Add the second extract report, specifying the same Activity and Task Group as the Calculate Cross Earnings.
 - c. Add a manual verification task, specifying the same Activity and Task Group as the Calculate Cross Earnings.
4. Edit each task, specifying a sequence number on the Edit Task Details: Owners and Checklist Details page.

The lowest number is used for the first task in the checklist. For example, you might specify a sequence of:

- o 10 for the Calculate Gross Earnings task
 - o 20 for the first extract report
 - o 30 for the second extract report
 - o 40 for the manual verification task
5. On the Tasks Sequence tab, reorder the sequence of reporting tasks in this order to run the two reports concurrently.

Task	Following Task
Start Flow	Calculate Gross Earnings
Calculate Gross Earnings	First extract report
Calculate Gross Earnings	Second extract report
First extract report	Manual verification task
Second extract report	Manual verification task
Manual verification task	End Flow

Automatically Increment Dates in the Scheduled Extract

You create a flow pattern to extract weekly payroll data that requires the user to enter a process date parameter. You schedule the extract to run weekly. The application evaluates the flow parameters at the time of submission, and the task parameters at the beginning of task execution. You edit the task parameters to automatically increment the date field. The date values are derived from the default date parameter values.

You use the Refine Extracts task or the Payroll Flow Patterns task. Perform these actions to edit the task parameters on the task's Basic Information page.

1. Select the **Process Date** parameter.
2. Select **Context** binding from the Parameter Basis field.
3. Select **System Date** from the Basis Value field.

Add a BI Publisher Report to a Flow

This example demonstrates how you can create a BI Publisher report and run the report using a flow. Add single or multiple BI Publisher reports to your copied or user-defined flow pattern.

When you submit the flow, the report automatically generates an output file that you can view. The output file is based on the template used for the BI Publisher report, Use the Run BI Publisher Report task to include the task in the flow pattern. The Run BI Publisher Report task belongs to the Statutory activities in the flow pattern.

Complete these tasks to create a user-defined report and include it in a flow.

- Create a Data Model
- Create a report template
- Create a user-defined flow to run the new report

Create a Data Model

The first step in creating a report is to define the source of data for the report. A data model contains a set of instructions for the BI Publisher to retrieve and structure data for a report. In this example, you create a data model that has a single data set that retrieves data from a single data source, the database tables in the HCM application.

You use an SQL query to reference the application database tables and retrieve the list of values for the report parameters. When you run the report, the report engine executes the query and uses the results to display and populate the parameter list of values.

You must have BI Publisher Developer or BI Publisher Administrator role to create or edit reports from the BI Publisher.

Follow these steps to create the data model.

1. Navigate to **Reports and Analytics** under **Tools** in **My Client Groups** on the Home page.
2. Click **Browse Catalog** to open BI analytics in a new tab.
3. Navigate to **/Shared Folders/Custom** folder.
4. Click **New** and select **Data Model** under Published Reporting.
5. Click **Add** under Diagram and select SQL Query.

- Enter this information in the **New Data Set - SQL Query** window.

Field	Value
Name	Enter a name for the new data model.
Data Source	ApplicationDB_HCM
Type of SQL	Standard SQL

- Enter this SQL Query in the Query Builder box.

```
Select pfi. Instance_Name, pfi.Fl_Task_Status, pfi.Status as Task_Status, pci.Status as
Checklist_Status, pci.Owner_ID
from pay_flow_instances pfi, Pay_Flow_Instances pci
where pfi.flow_instance_id = pci.flow_instance_id
and pfi.instance_name = instanceName
and pfi.status = flowStatus
and pci.status = checklistStatus
```

- Click **OK**.
- Click **Parameters** under Properties in the left pane.
- Enter these values for each of the three parameters defined for this model, Flow Instance Name, Flow Status, and Checklist Status.

Field	Value
Name	Enter a name for the parameter.
Data Type	Select String from the list.
Default Value	This isn't a mandatory field.
Parameter Type	Select a value from the list. Select text for all three parameters in this example.
Row Placement	Enter a value to show in which row to place each parameter. By default, all parameters are placed in row one.

- Click the **Save As** icon, enter a Name for the Data Model, and save the Data Model under the path **Shared Folders/Custom/**.
- To test the Data Model, select the **Data** tab.
- Click **View** to view the XML. Provide a value for the three parameters.
- Click **Table View** to view the sample data in a tabular form.
- Click **Validate**.
- Click **Export** and save the XML file locally on your computer.

17. Click **View Engine Log** and view the Data Processor log file in XML form. You can save the file to your local directory.

Create the RTF Report Template

You can either use MS Word which already has the BI Publisher plug-in integrated to create an RTF template or use BI publisher's quick Create Report option from the Data Model editor page. In this example, we will use the Create Report option.

Follow these steps to create an RTF report template.

1. Click **Create Report**.
2. Under the Select Data tab, click **Use Data Model** option to create the report using the data model you have already created in the previous task.
3. Click **Next** and under the Select Layout tab, select the report layout to define the page orientation of the report. The available options are either Portrait or Landscape.
4. Click **Next** and under the Create Table tab drag fields from the Data Source and drop them in columns on the table in an appropriate sequence.

The Create Report process uses the sample data that is saved to the data model. If sample data is not attached to the data model, the selected column headings display without data.

5. Click **Next** and save the report in the **Shared Folders/Custom** folder.
6. Navigate to **/SharedFolders/Custom** and open the report, provide appropriate values for the Instance Name, Flow Status and Checklist Status as an input parameter and click **Apply**.
7. To add additional roles, for example, BI Consumer Role, click **More** and then **Permissions**, and select the appropriate Permissions against a role.
8. Click **OK**.

Create a User-Defined Flow to Run the BI Publisher Report

Follow these steps to add the BI Publisher report to a user-defined flow.

1. Use the **Flow Patterns** task under **Payroll** in **My Client Groups**.
2. Click **Create** and enter this information.

Field	Value
Flow Pattern	Enter a name for the flow pattern.
Description	Entering a description for the flow is optional.
LDG Required	Select an LDG to restrict this flow for a specific legislative data group.
Flow Status	Select Active .
Connector Status	Task Flow

3. Select **Statutory** in the **Activities to Include** field.

4. In the Tasks section, select **Run BI Publisher Report**.
5. Click **Next**.
6. On the Parameters page, click **Select and Add**, and add the three parameters.

The flow parameters map to the BI Publisher arguments. For example, if your report is based on a SQL query, the first argument is the first bind variable of a SQL query data model.

Tip: To easily determine the sequence of arguments, view the list of parameters for the generated report in BI Publisher.

For example the First Argument is the Instance Name, the Second Argument is the Flow Status and so on.

7. Optionally, rename the parameter to a more meaningful name.
8. On the Task parameters page, in the Parameter Details section, complete these steps:
 - a. Confirm that the Parameter Basis for the First Argument value is Bind to Flow.
 - b. Select the **Report Path** parameter and enter the parameter Basis as **Constant** and Basis Value as the report path. Enter the path of the XDO.

For example, if the BI Publisher data model is saved to the Custom folder in Shared Folders you would specify `/Custom/yourBIreport.xdo`.

9. Verify that the first, second and third argument parameters are bound to the flow parameter correctly.
10. Click **Next**, review the flow and save it.
11. Use **Submit a Flow** task from Payroll in My Client Groups on the Home page and submit the flow.
12. Submit the flow and view Checklist. Keep refreshing until flow is completed. Once completed, click on the **Run BI Publisher Report** link and view the report output.

Create a Flow within a Flow

In this example you copy the Transfer Batch flow and modify it to include a predefined report flow pattern you created earlier. The predefined flow you add submits a report to check for any batch line errors during the Transfer Batch process.

If the transfer fails, you can skip the transfer process or mark it as complete, and then view the report for error details.

Create the Parent Flow Pattern

1. In the Payroll Checklist work area, select the **Manage Payroll Flow Patterns** task.
2. Search for and select the row for **Transfer Batch**, and then click **Copy**.
3. Enter the name of the new flow pattern, such as **Transfer Batch with Error Report**.
4. Enter a description, such as "Transfer a batch and view any batch line errors that occurred." and then click **Save and Close**.
5. Search for and select the **Transfer Batch with Error Report** flow pattern, and then click **Edit**.

6. Here's the list of tasks to add the parameter that derives batch name from the batch ID.

- a. On the Parameters tab, click **Add**.
- b. Select the added row and click **Edit**.
- c. Add these values.

Field	Value
Flow Parameter	Batch Name
Use for Searches	No
Display	No
Display Format	Text
Sequence	3
Usage	Input parameter
Parameter Basis	Post SQL Bind
Basis Value	<code>select batch_name from pay_batch_headers where batch_id = :BATCH</code>

7. Click **Save**.

Add the Report to the Parent Flow

1. On the Tasks tab, click **Select and Add**.
2. In the Search window, search for and select **Submit Another Flow**, and then click **Done**.
3. In the row for Submit Another Flow, click **Edit** on the menu bar and set these values to define the task you have added to generate the batch lines error report.

Field	Value
Task	Run Batch Lines Report
Activity	Statutory
Task Group	Reporting

Field	Value
Description	Submit the batch lines error report for the specified batch.

4. Edit task parameters as follows:

- a. In the row for Run Batch Lines Report, click **Edit Task**.
- b. Configure these predefined task parameters. Select a parameter and the corresponding parameter basis and basis value.

Parameter	Parameter Basis	Basis Value
Flow Name	Constant Bind	The name of the flow, for example Batch Lines Report. This value is case-sensitive. Enter the name exactly.
From Flow Instance ID	Context Binding	Payroll flow
From Flow Task Instance ID	Context Binding	Payroll task
Use to Calculate Results	Constant Bind	Y
Parameter Name 1	Constant Bind	Batch Name
Parameter Value 1	Bind To Flow	Batch Name

- c. Click **Next**, and optionally complete the owner and checklist information.
- d. Click **Next**, and optionally complete the duration and notification information.
- e. Click **Submit**.

5. Perform these steps to edit the task sequence:

- a. On the Task Sequence tab, edit these two rows to enter the flow tasks and sequence in the flow.

Start Flow	Following Task
Transfer Batch	Run Batch Lines Report
Run Batch Lines Report	End Flow

- b. Click **Submit**.

Test the Flow

1. Create and save a test batch that should cause an error.

Alternatively, you can search for an existing batch that was transferred with errors using this SQL query:

```
select * from pay_batch_headers where batch_status = 'E';
```

2. On the Submit a Process or Report page, select a legislative data group.
3. Select the **Transfer Batch with Error Report** task, and then click **Next**.
4. Enter a unique name for the current flow instance.
5. Enter the name of the batch with errors that you saved or queried, and then click **Submit**.
6. Click **OK and View Checklist**, and then click the **Refresh** icon until the Transfer Batch task shows as in progress with error.
7. View the report in the flow as follows:
 - a. Select the row with the Transfer Batch task, and then select **Skip Task** in the Actions menu.
 - b. In the row for Run Batch Lines Report, click **Go to Task**.
 - c. In the Processes and Results section, click the name of the report.
 - d. In the row for Run BI Publisher Report, click **Go to Task**.
 - e. On the Process and Reports tab, click **View Results**.
 - f. Click the PDF file name to open the report.

Related Topics

- [Create a Flow within a Flow](#)

FAQs for Flow Patterns

What happens if I don't enter a task owner in a flow pattern?

The person who submits the flow becomes the flow owner and the task owner. The person's security privileges determine whether the person can submit the flow.

How can I rearrange tasks in a flow pattern?

Every flow pattern begins with a Start Flow task, which doesn't belong to an Activity or Task Group, and concludes with an End Flow task. Edit the task sequence by selecting a different task in the Following Task column.

When you create a flow, use the Task Sequence page to rearrange the tasks. When you edit a flow, select the task and edit its sequence on the Create Flow Pattern: Basic Information page. When you submit a flow, processes in the flow use and build upon the results of the previous processes. To maintain data integrity, ensure the sequenced tasks follow a consecutive order.

How can I improve performance and troubleshoot flows?

Add parameters to a payroll process configuration group to optimize performance and troubleshoot your payroll processes. To process large volumes of records, use the Threads and Chunk Size parameters.

To troubleshoot processes, add the Logging Category or Formula Execution Logging parameters to a configuration group and rerun the process using that configuration group. Using these parameters enables you to investigate formula code problems.

How can I run tasks concurrently in a flow?

Use the Manage Payroll Flow Patterns task in the Payroll Checklist. Search for and open your flow pattern. Click the Task Sequence tab. Specify that each concurrent task follows the same previous task.

For example, you create a flow pattern with a payroll calculation task and two reports. The flow ends when both reports complete. You can use these actions to run the payroll calculation task and the two reports run concurrently.

1. For the first row, specify the Start Flow task with the Calculate Payroll as the following task.
2. For the second row, specify Calculate Payroll as the task, and the first report as the following task.
3. For the third row, specify Calculate Payroll as the task, and the second report as the following task.
4. For the fourth row, specify the first report as the task and End Flow as the following task.
5. For the last row, specify the second report as the task and End Flow as the following task.

4 Transferring Encrypted Data

Set up Encryption for File Transfer

You use encryption keys to encrypt files for secure transfer between Oracle HCM Cloud and your own servers through the Oracle WebCenter Content server. This PGP-based encryption support is available for secure file transfer using HCM Data Loader and HCM Extracts.

The process for inbound files (into Oracle HCM Cloud) is:

1. You encrypt files using the Oracle HCM Cloud public key.
2. The data-loading process decrypts files using the Oracle HCM Cloud private key.

The process for outbound files (generated by Oracle HCM Cloud) is:

1. Oracle HCM Cloud encrypts files using your public key.
2. You decrypt files using your private key.

Therefore, before you can encrypt or decrypt files, you must:

1. Import your public key to Oracle HCM Cloud.
2. Generate the PGP encryption key pair and download the Oracle HCM Cloud public key.

You can also sign the files, as follows:

- Outbound files are signed using the HCM Cloud private key. You verify these files using the HCM Cloud public key.
- Inbound files are signed using your private key. The data-loading process verifies inbound files using your public key.

This topic describes how to set up encryption, decryption, and signing of files.

Encryption and Signature Keys

This table shows you the keys that are used for encryption, decryption, signing, and verification in each supported encryption mode.

Encryption Mode	Encryption Key	Decryption Key	Signing Key	Verification Key
Outbound PGP Signed	customer-key_pub	customer-key_priv	fusion-key_priv	fusion-key_pub
Outbound PGP Unsigned	customer-key_pub	customer-key_priv	N/A	N/A
Inbound PGP Signed	fusion-key_pub	fusion-key_priv	customer-key_priv	customer-key_pub
Inbound PGP Unsigned	fusion-key_pub	fusion-key_priv	N/A	N/A

Importing Your Public Key

You use your public key (customer-key_pub) for encrypting outbound files. You can decrypt the files using your private key (customer-key_priv). If you also want outbound files to be signed, then use the HCM Cloud private key (fusion-key_priv) for signing. You can verify signed outbound files using the HCM Cloud public key (fusion-key_pub).

To import the customer public key:

1. Sign in to Oracle HCM Cloud with the IT Security Manager job role or privileges.
2. Select **Navigator > Tools > Security Console** to open the Security Console.
3. Click the Certificates tab to open the Certificates page.
4. Click **Import** to open the Import page.
5. Set **Certificate Type** to **PGP**.
6. In the **Alias** field, enter a name to uniquely identify your key.
7. Click **Browse** to identify the location of the customer public key.
8. Click **Import and Close** to import the public key into the Oracle HCM Cloud keystore.

Your public key now appears on the Security Console Certificates page.

Generating the PGP Encryption Key Pair

You generate the PGP key pair on the Security Console. You download the public key to encrypt files that are inbound into HCM Cloud (for example, input data files for HCM Data Loader). To sign these inbound files, you can use your private key (customer-key_priv), which is verified using your public key (customer-key_pub) in Oracle HCM Cloud. You must have imported the customer public key.

To generate the PGP Encryption Key Pair:

1. Sign in to Oracle HCM Cloud with the IT Security Manager job role or privileges.
2. Select **Navigator > Tools > Security Console** to open the Security Console.
3. Click the Certificates tab to open the Certificates page.
4. Click **Generate** to open the **Generate** dialog box.
5. In the **Generate** dialog box, set **Certificate Type** to **PGP**.
6. In the **Alias** field, enter **fusion-key**.

Note: You must enter **fusion-key** in this field. Otherwise, the encryption APIs can't use this key to decrypt all encrypted inbound files.

7. In the **Passphrase** field, enter a passphrase for the private key. This passphrase is needed when you edit, delete, or download the private key.

Note: If you forget the passphrase, then you may have to raise a service request for help to delete the private key. Once the old key is deleted, you can generate a new key using the process described here.

8. In the **Key Algorithm** field, select **RSA**.
9. In the **Key Length** field, select either **1024** or **2048**.
10. Click **Save and Close**. The fusion-key pair is generated and ready for download. You can see the fusion-key pair on the Certificates page of the Security Console.
11. In the **Status** actions for the fusion-key pair on the Certificates page, select **Export > Public key**. Save the HCM Cloud public key (**fusion-key_pub.asc**) to your desktop. Use the downloaded key to encrypt files that are inbound to Oracle HCM Cloud.

Transfer Files Automatically from HCM Extracts with PGP Encryption

Transfer encrypted files to Oracle WebCenter Content using HCM Extracts and your encryption key. HCM Extracts can generate encrypted output and store it on the WebCenter Content server. For example, you can encrypt and decrypt files that contain sensitive employee data or confidential documents.

Use HCM Extracts to generate encrypted files and deliver them to the WebCenter Content server. You write your own programs to collect the files.

Note: You must set up your encryption keys before you try to encrypt or decrypt data.

Outbound Integrations

Set up the following information to use HCM Extracts with your outbound integrations:

1. In the Data Exchange work area, select the Manage Extract Definitions task.
2. Select the WebCenter Content delivery type on the Deliver page.
3. Enter an Integration Name. The application uses this name to create the title of the entry in WebCenter Content.
4. Select an Encryption Mode. The encryption mode is one of the values from the `ORA_HRC_FILE_ENCRYPT_TYPE` lookup type. It determines how the application encrypts the file before loading it to WebCenter Content. When HCM Extracts transfers the file to WebCenter Content it generates a content ID automatically with the following format: UCMFAnnnnnn.

The file includes the following properties:

Field Name	Value
Author	FUSION_APPS_HCM_ESS_APPID
Security Group	FAFusionImportExport
Account	<p>hcm\$/extracts\$/export\$</p> <p>Note: If there is an explicit reference to the Account in your scripts, ensure that your scripts are updated to refer to this dDocAccount.</p>
Title	<p>HEXTV1CON_{Integration Name}_{Encryption Type}_{Date Time Stamp}</p> <p>For example: HEXTV1CON_ExtractConn1_PGPUNSIGNED_17-11-2014 14-16-44</p>

5. Configure the HCM Extract delivery option to output an XML (data) file directly to WebCenter Content without formatting it in BI Publisher. You can achieve this by selecting Data as the output format, omitting a template name, and selecting the WebCenter Content Delivery Type.
6. Download the encrypted files from WebCenter Content using client command-line tools or a web service call.

Decryption of Outbound Files

Using your private key, you can decrypt encrypted files that are generated from Oracle HCM Cloud. To verify signed files, you use the Oracle HCM Cloud public key. Ensure that these two keys are imported into the keystore. For both Microsoft Windows and Linux, use this command to decrypt both signed and unsigned files:

```
gpg --decrypt <inbound_file_name> --output <output_file_name>
```

5 HCM Data Loader Extracts

Overview of HCM Data Loader Extracts

HCM Extracts provides four extracts for HCM Data Loader, as shown in this table.

Extract Name	Description
HCM Data Loader Data Set Summary	Provides status values and record counts for both a specified data set and each business object in the data set. It reports all error messages and identifies all records affected by each error.
Compensation Changes Extract	For a specified compensation run, extracts assignment, salary, and bonus changes made by the run. This extract is most useful if you're implementing a coexistence scenario.
Integration Object User Key Refresh	Retrieves latest user key values. Run this extract before running the Integration Object User Key Map Extract.
Integration Object User Key Map Extract	Extracts GUIDs, source keys, surrogate IDs, and user keys for a specified business object hierarchy.

The output from all extracts is in XML format by default. You can provide a BI Publisher layout to reformat the output. You can also define options to automate delivery of the output.

Before users can run any of these extracts, you:

1. Copy the predefined extract, specify a delivery option, and compile the formulas for your copy of the extract.
2. Configure your copy of the extract.

Once the extract is configured, users can run it and view the output.

To learn how to create a HCM Extract delivery option to format your output into a HDL file and define a payroll flow pattern to initiate the extract and submit HDL, see the tutorial: [Initiate HCM Data Loader for HCM Extract Generated Files](#)

Related Topics

- [Manage an HCM Data Loader Extract Definition](#)
- [Configure a Copied HCM Data Loader Extract](#)

Setting Up HCM Data Loader Extracts

Manage an HCM Data Loader Extract Definition

HCM Extracts provides four predefined extracts for HCM Data Loader:

- HCM Data Loader Data Set Summary
- Compensation Changes Extract
- Integration Object User Key Refresh
- Integration Object User Key Map Extract

This topic explains how to copy a predefined extract, specify a delivery option, and compile the formulas for the copied extract. You can follow these instructions for any of the HCM Data Loader extracts.

Copy the Extract

Follow these steps to copy an HCM Data Loader extract:

1. In the Data Exchange work area, click **Extract Definitions**.
2. On the Extract Definitions page, search for the extract.
3. Select the extract in the search results and click **Actions > Copy or Rename**.
4. In the Copy Extract Definition dialog box, enter a name for your copy of the extract and click **OK**.

A confirmation message appears when the copy is complete.

Specify a Delivery Option for the Copied Extract

Follow these steps to specify a delivery option:

1. On the Extract Definitions page, search for your copy of the extract.
2. Click the extract name in the search results to display the extract definition on the Extract Definitions page.
3. Click **Deliver**.
4. In the Extract Delivery Options section, click **Add**.
5. Specify a delivery option. To keep the default XML output, set the **Output Type** to **Data**.
6. For the XML delivery option, specify **Delivery Option Name**, **Output Name**, and **Delivery Type** values.

Tip: The values that you must specify vary by output type.

7. Click **Save**.

For more information, see Oracle Fusion HCM Extracts: Delivery Options (document ID 1573099.1) on My Oracle Support at <https://support.oracle.com>.

Compile the Formulas for the Copied Extract

Follow these steps to compile the formulas:

1. On the Extract Definitions page, click **Validate**.
2. In the Extract Execution Tree section, click **Compile All Formula** to compile the formulas.
3. Refresh the table periodically until all formulas are successfully compiled. A check mark means success.
4. Click **Submit**.

Once these steps are complete, perform the **Refine Extracts** task in the Data Exchange work area to configure the copied HCM Data Loader extract.

Related Topics

- [Overview of HCM Data Loader Extracts](#)
- [Configure a Copied HCM Data Loader Extract](#)

Configure a Copied HCM Data Loader Extract

HCM Extracts provides four predefined extracts for HCM Data Loader:

- HCM Data Loader Data Set Summary
- Compensation Changes Extract
- Integration Object User Key Refresh
- Integration Object User Key Map Extract

This topic explains how to configure an extract after copying it, specifying a delivery option, and compiling its formulas. Follow these steps:

1. On the Tasks panel tab of the Data Exchange work area, select **Refine Extracts** to open the Payroll Flow Patterns page.
2. On the Payroll Flow Patterns page, enter the name of your copy of the extract in the **Flow Pattern** field and click **Search**.
3. In the search results, select your extract and click **Edit**.
4. Click the Parameters tab to review the parameter definitions.
5. Edit the **Display**, **Sequence**, **Parameter Basis**, and **Basis Value** for each parameter. You can also edit the parameter names, if required.
6. Save your changes.

Users can now run the extract.

Related Topics

- [HCM Data Loader Data Set Summary Extract Parameters](#)
- [Compensation Changes Extract Parameters](#)
- [Integration Object User Key Refresh and Integration Object User Key Map Extract Parameters](#)

HCM Data Loader Data Set Summary Extract Parameters

This topic describes how to configure the parameters of the HCM Data Loader Data Set Summary extract.

To configure the parameters, you perform the **Refine Extracts** task in the Data Exchange work area.

Configuring the Parameters

This table shows the parameters that you must edit and the required values for the HCM Data Loader Data Set Summary extract. You can ignore parameters not shown here.

Parameter	Display	Sequence	Parameter Basis	Basis Value
Effective Date	No	3	Context Binding	System Date
Start Date	No	9	Not applicable	Not applicable

Parameter	Display	Sequence	Parameter Basis	Basis Value
Content ID	Yes	12	Not applicable	Not applicable
Data Set Name	Yes	13	Not applicable	Not applicable
Process ID	Yes	11	Not applicable	Not applicable
Show Messages	No	14	Constant Bind	Y
Show Stack Trace	No	15	Constant Bind	N

Related Topics

- [Configure a Copied HCM Data Loader Extract](#)
- [Overview of HCM Data Loader Extracts](#)

Compensation Changes Extract Parameters

This topic describes how to configure the parameters of the Compensation Changes Extract for HCM Data Loader.

To configure the parameters, you perform the **Refine Extracts** task in the Data Exchange work area.

Configuring the Parameters

This table shows the parameters that you must edit and the required values for the Compensation Changes Extract. You can ignore parameters not shown here.

Parameter	Display	Sequence	Parameter Basis	Basis Value
Effective Date	No	3	Context Binding	System Date
Start Date	No	9	Not applicable	Not applicable
Extract Target	No	15	Constant Bind	HDL
Period Name	Yes	12	Not applicable	Not applicable
Plan	Yes	11	Not applicable	Not applicable
Process Id	Yes	13	Not applicable	Not applicable
Run Id	Yes	14	Not applicable	Not applicable

Parameter	Display	Sequence	Parameter Basis	Basis Value

Related Topics

- [Configure a Copied HCM Data Loader Extract](#)
- [Overview of HCM Data Loader Extracts](#)

Integration Object User Key Refresh and Integration Object User Key Map Extract Parameters

This topic describes how to configure the parameters of these HCM Data Loader extracts:

- Integration Object User Key Refresh
- Integration Object User Key Map Extract

To configure the parameters, you perform the **Refine Extracts** task in the Data Exchange work area.

Configuring the Parameters

This table shows the parameters that you must edit and the required values for the Integration Object User Key Refresh extract.

Parameter	Display	Sequence	Parameter Basis	Basis Value
Effective Date	Mandatory	3	Context Binding	System Date
Start Date	No	9	Not applicable	Not applicable
Process Configuration Group	Yes	17	Not applicable	Not applicable
Business Object	Yes	76	Not applicable	Not applicable
Component Discriminator	Yes	81	Not applicable	Not applicable
Include Child Components	Yes	91	Not applicable	Not applicable

Note: You're recommended to change the name of the **Business Object** parameter to **Business Object Discriminator**.

This table shows the parameters that you must edit and the required values for the Integration Object User Key Map Extract.

Parameter	Display	Sequence	Parameter Basis	Basis Value
Effective Date	Mandatory	3	Context Binding	System Date
Start Date	No	9	Not applicable	Not applicable
Process Configuration Group	Yes	17	Not applicable	Not applicable
Business Object	Yes	22	Not applicable	Not applicable
Component Discriminator	Yes	23	Not applicable	Not applicable
Include Child Components	Yes	24	Not applicable	Not applicable
Source System Owner	Yes	25	Not applicable	Not applicable
Baseline Only	No	81	Not applicable	Not applicable
Changes Only	No	91	Not applicable	Not applicable
Delete Archive	No	101	Not applicable	Not applicable

Note: You're recommended to change the name of the **Business Object** parameter to **Business Object Discriminator**.

Related Topics

- [Configure a Copied HCM Data Loader Extract](#)
- [Overview of HCM Data Loader Extracts](#)

Running HCM Data Loader Extracts

Submit an HCM Data Loader Extract

HCM Extracts provides four predefined extracts for HCM Data Loader:

- HCM Data Loader Data Set Summary

- Compensation Changes Extract
- Integration Object User Key Refresh
- Integration Object User Key Map Extract

This topic explains how to submit a configured HCM Data Loader extract.

Select the Extract

Follow these steps:

1. On the Tasks panel tab of the Data Exchange work area, select **Submit Extracts** to open the Submit a Process or Report page.
2. Using the query by example fields, find your extract and click **Next**.
The Enter Parameters page opens.
3. In the **Payroll Flow** field, enter a flow name for this run of the extract.
4. Enter the parameter values for your extract.

Enter Parameters for the HCM Data Loader Data Set Summary Extract

This table shows the parameters for the HCM Data Loader Data Set Summary extract. Enter any one of the **Content ID**, **Process ID**, and **Data Set Name** parameters. You can find all of these values for a specific data set on the Import and Load Data page.

Parameter	Description
Content ID	The content ID associated with the data set. This ID was assigned when you uploaded your source file to the Oracle WebCenter Content server.
Data Set Name	The data set name, which is also your source file name.
Process Configuration Group	Leave blank.
Process ID	The process ID of the process that created the data set. This ID was assigned when you submitted your source file for processing by HCM Data Loader.

Enter Parameters for the Compensation Changes Extract

This table shows the parameters of the Compensation Changes Extract. To identify the compensation run to report on, use one of the following parameters or pairs of parameters:

- Plan and Period Name
- Process Id
- Run Id

Parameter	Description
Plan	The compensation plan name

Parameter	Description
Period Name	The period name for the compensation run
Process Id	The process ID for the compensation run
Run Id	The run ID for the compensation run

Enter Parameters for the Integration Object User Key Refresh Extract

This table shows the parameters of the Integration Object User Key Refresh Extract.

Parameter	Description
Business Object	The file discriminator of the business object for which you want to refresh keys. For example, for some or all components of the Worker object, set this parameter to Worker . You can find the file discriminator values on the Business Object Details page for the object in the Data Exchange work area.
Component Discriminator	The file discriminator of the business object component. For example, to refresh keys for the Work Relationship component of the Worker object, set this parameter to WorkRelationship . You can find the file discriminator values on the Business Object Details page for the object in the Data Exchange work area.
Include Child Components	Set to Yes to include the child components of the business object or component in the refresh.
Process Configuration Group	Leave blank.

Enter Parameters for the Integration Object User Key Map Extract

This table shows the parameters of the Integration Object User Key Map Extract.

Parameter	Description
Business Object	The file discriminator of the business object for which you want to extract keys. For example, for some or all components of the Worker object, set this parameter to Worker . You can find the file discriminator values on the Business Object Details page for the object in the Data Exchange work area.
Component Discriminator	The file discriminator of the business object component. For example, to extract keys for the Work Relationship component of the Worker object, set this parameter to WorkRelationship . You can find the file discriminator values on the Business Object Details page for the object in the Data Exchange work area.
Include Child Components	Set to Yes to include the child components of the business object or component in the extract.

Parameter	Description
	Tip: If you're extracting a large number of records, then you're recommended to set this parameter to No and extract each component separately.
Process Configuration Group	Leave blank.
Source System Owner	If required, select a value to extract the keys for a specified source system owner. The extract includes all types of keys, but only for those object instances with this source system owner.

Submit the Extract

Follow these steps:

1. Click **Next** until you reach the Review page.
2. Click **Submit**.

A confirmation message appears when your extract is submitted successfully.

3. Close the Confirmation dialog box.

You can now view the extract output.

To learn how to create a HCM Extract delivery option to format your output into a HDL file and define a payroll flow pattern to initiate the extract and submit HDL, see the tutorial: [Initiate HCM Data Loader for HCM Extract Generated Files](#)

Related Topics

- [Overview of HCM Data Loader Extracts](#)
- [View the Results of an HCM Data Loader Extract](#)

View the Results of an HCM Data Loader Extract

HCM Extracts provides four predefined extracts for HCM Data Loader:

- HCM Data Loader Data Set Summary
- Compensation Changes Extract
- Integration Object User Key Refresh
- Integration Object User Key Map Extract

This topic explains how to view the output from an HCM Data Loader extract. Follow these steps:

1. Click **Navigator > My Client Groups > Data Exchange**.
2. In the Data Exchange work area, click **View Extract Results**.
3. On the View Extract Results page, enter the extract instance name or extract name, submission date range, and its process status for which you want the results.
4. Click **Search**.

5. In the Search Results section, click the extract instance name link for which you want to view the extract result details.
 6. On the extract details page, click the Extract Delivery Options tab to download the extract results output file.
- To learn how to create a HCM Extract delivery option to format your output into a HDL file and define a payroll flow pattern to initiate the extract and submit HDL, see the tutorial: [Initiate HCM Data Loader for HCM Extract Generated Files](#)

Related Topics

- [Overview of HCM Data Loader Extracts](#)
- [Submit an HCM Data Loader Extract](#)

6 Benefits Data Extract

Guidelines for Extracting Benefits Data Using HCM Extracts

Consider these key guidelines before you extract benefits data.

Aspect	Details
Extract type	When you create an extract definition, ensure that you select Benefits Carrier from the Extract Type list.
Option Type	<p>You select the option type on the Manage Plan Types page. Make sure that the option type of the plan type that you're using to create an extract definition is one of these types.</p> <ul style="list-style-type: none"> • Health Coverage • Spending Account • Life Insurance Coverage <p>Other types aren't supported at this time.</p>
Extract Plan Type Names	You need to enter the name of the extract plan type correctly when you create or edit the plan type. See the related links section in this topic for a full list of valid extract names.
Extract Option Names	You need to enter the extract option name correctly when you create or edit the option. See the related links section in this topic for a full list of valid extract names.
Benefits Extract Plan Code	You need to enter the correct plan code on the Additional Configuration step when you create or edit a plan. The plan code is an identification code provided by the carrier, such as UHCORCLO01.
Lookup value mapping	Make sure that you map the required lookup values accurately in the Mapping tab on the Manage Plan Carriers page.
Extracts data for terminated employees	The data for terminated participants and their dependents won't be included in the extracts after the extract process runs for the second time after the employee's termination date.
Contacts (dependents)	You need to map the contact lookup accurately. For example, if you need to include the contact's marital status in the extract, the mapping value should be True, and shouldn't have a NULL value.
Participant or dependent address	Ensure that addresses are categorized accurately. For example, if there is no address that's marked as Home, or if there are several addresses that are marked as Home, the addresses won't be included in the extract.
Data Groups	Create a PER_EXT_SEC_PERSON_UE (Person) data group and select it as the root data group. The following benefits data groups are available:

Aspect	Details
	<ul style="list-style-type: none"> • BEN_EXT_ENRT_RSLT_UE (Enrollment Results) • BEN_EXT_ENRT_DPNT_UE (Dependents) • BEN_EXT_ENRT_BNF_UE (Beneficiaries) • BEN_EXT_ENRT_RTCVG_UE (Rates and Coverage)
Sequence of extract records	<p>After you create the data groups, ensure that you sequence the data groups to identify which data group the application processes next:</p> <ul style="list-style-type: none"> • Person • Dependents • Beneficiaries • Enrollments • Rates and coverage

Related Topics

- [Valid Extract Names](#)
- [Define Extracts](#)

Configure Benefits for Extracting Data

This topic covers how to set up benefit plan carriers and offerings so that you can then generate and transmit enrollment data extracts. You extract benefits enrollment information into a single XML file for each benefits carrier.

To configure the benefits data extract, you complete these tasks in the Plan Configuration work area:

1. Create the plan carrier and configure extract settings.
2. Add the benefits extract plan type name.
3. Add the benefits extract plan code.
4. Add the benefits extract option name.

Creating Plan Carrier

Set up carrier data and configure extract options in the Plan Configuration work area that apply whenever you run the extract for that carrier.

1. In the Tasks panel drawer, click **Manage Plan Carriers** to open the Manage Plan Carriers page. On the Mapping tab, you can view the mapping of lookup codes to the lookup value that you transmit to carriers. Edits to mapping values affect all plan carriers that use the lookup.
2. On the Search Results toolbar, click the **Create** button.
3. Enter the carrier information. In the **Active** field, select **Active**.
4. Enter the extract options.

The following table provides comments to help you with your extract field entries and selections.

Field	Comments
Extract Type	Select whether to run a full extract or extract only the changes since the previous extract. Generally, you run a full extract after an enrollment period closes and enrollments are completed. You run subsequent extracts on a periodic or scheduled basis, in either full or changes only mode.
Output File Name	Obtain the value that you enter here from the extract file recipient.
Processing Frequency	A common practice is to schedule your extracts to run after your regular payroll runs. You might want to set the processing frequency accordingly.
Processing Type	By default, all extracts have the same format, regardless of which carrier receives the extract. You can contract with Oracle's partner, BenefitsXML, to have a carrier's extract data transformed and delivered to the carrier, according to its specifications. For more information about BenefitsXML, see http://www.benefitsxml.com . If you don't use this partner, you can transform and deliver the extract data file directly to each of your plan carriers, according to their specifications.
Upload Custom Layout	This button is available if you select the Custom layout processing type. <ul style="list-style-type: none"> ○ Specify the layout for the individual carrier. For details, see the Benefits Extract: User-Defined Layout topic

5. Enter the file transfer details, which you obtained from the extract file recipient. You can transmit extract files directly to the recipient. Alternatively, you can transmit extract files to the Oracle cloud, using its file transfer details, and have your recipient download its extract from there.

Field	Comments
Host	The name of the server to which you transmit the recipient's extract files.
Remote Folder	Path on the host to the location where your transmission places the extract file.
User Name	Part of the sign-in credentials required for your transmission to access the host.
Password	Part of the sign-in credentials required for your transmission to access the host.

6. Click **Save and Close** to return to the Manage Plan Carriers page.

Adding Benefits Extract Plan Type Name

Complete these steps in the Plan Configuration work area to identify each type of plan included in the extract file for the recipient.

1. In the Tasks panel drawer, click **Manage Plan Types** to open the Manage Plan Types page.
2. Search for and click the plan type, for example, Medical.
3. On the Plan Type Definition section **Actions** menu, select **Update**.
4. Enter the valid benefits extract plan type name, for example, Health.
5. Click **Save and Close** to return to the Manage Plan Types page.

See the guidelines topic for more info on the valid option types to use for the plan type that you want to include in the extract.

Adding Benefits Extract Plan Code

Complete these steps in the Plan Configuration work area to link the plan to the extract file recipient.

1. In the Tasks panel drawer, click **Manage Benefits Plan Details** to open the Manage Benefits Plan Details page.
2. Search for and click the plan that you want to link to the extract file recipient.
3. Click **Next** to open the Edit Plan Additional Configuration page.
4. On the Configuration Details section **Actions** menu, select **Update**.
5. Enter the benefits extract plan code, which the extract file recipient provided to you for this specific plan.
6. Click **Save and Close** to return to the Plans tab.

Adding Benefits Extract Option Name

Complete these steps in the Plan Configuration work area to identify each option included in the extract file for the recipient.

1. In the Tasks panel drawer, click **Manage Benefit Options** to open the Manage Benefit Options page.
2. Search for and click the participant option, for example, Participant Only.
3. On the Basic Details section **Actions** menu, select **Update**.
4. Enter the valid benefits extract option name, for example, Employee Only.
5. Click **Save and Close** to return to the Manage Benefit Options page.

Next Steps

After you complete the previous tasks, you're ready to generate and transmit the extract data. The details of this process are covered in the [Generating and Transmitting Benefits Data Extract for Plan Carriers: Procedure](#) topic.

Related Topics

- [Valid Extract Names](#)
- [Generate and Transmit Benefit Extracts](#)
- [Guidelines for Extracting Benefits Data Using HCM Extracts](#)
- [Example of a Custom Layout for Benefits Extract](#)

Valid Extract Names

Oracle partner BenefiX provides valid extract names that you can enter for benefits plan types and options. You can add values to this list, as required.

Benefit Extract Plan Type Names

Valid benefits extract names for plan types:

- 24 Care
- Dental
- Dental Capitation
- Exclusive Provider Organization
- Health
- Health Maintenance Organization
- Hearing
- Long Term Care
- Long Term Disability
- Mail Order Drug
- Major Medical
- Medicare Risk
- Mental Health
- Point of Service
- Preferred Provider Organization
- Prescription Drug
- Preventative Care
- Short Term Disability
- Utilization Review
- Vision

Benefits Extract Option Names

Valid benefits extract names for options

- Children Only
- Dependents Only
- Employee and Children
- Employee and Five or More Dependents
- Employee and Four or More Dependents
- Employee and One Dependent

- Employee and One or More Dependents
- Employee and Spouse
- Employee and Three Dependents
- Employee and Three or More Dependents
- Employee and Two Dependents
- Employee and Two or More Dependents
- Employee Only
- Family
- Individual
- Not Applicable
- Spouse and Children
- Spouse Only
- Two Party
- Employee and Domestic Partner
- Domestic Partner and Children
- Domestic Partner Only
- Employee and Spouse or Domestic Partner
- Child or Children of a Domestic Partner

Generate and Transmit Benefit Extracts

You can extract benefits enrollment information into a single XML file for each benefits carrier and transmit it to the carrier. This topic covers how to generate and transmit the extract file.

Note: If a carrier provides more than one plan, the single extract contains information related to all plans provided by that carrier. Example: Four different carriers provide ten plans. You run four separate extracts, one for each carrier.

To generate and view the extract, you complete these tasks in the Evaluation and Reporting work area.

1. Submit the extract request.
2. View and transmit the extract details.

Prerequisites

You must first configure your plan carriers, or extract recipients, and add the relevant extract data to the appropriate plan types, plans, and options. The details of this process are covered in the *Configuring Benefits Data Extract for Plan Carriers: Procedure* topic.

Submitting Extract Request

To run and monitor extracts, in the Evaluation and Reporting work area:

1. In the Tasks panel drawer, click **Extract Benefits Data** to open the Extract Benefits Data page.

2. On the Search Results toolbar, click **Submit**.
3. Enter the extract request options.

Field	Comments
Extract Type	<p>For a particular carrier, you can select whether to run a full extract or extract only the changes since you ran the previous extract.</p> <ul style="list-style-type: none"> ○ Generally, you run a full extract after an enrollment period closes and enrollments are completed. ○ You run subsequent extracts on a periodic or scheduled basis, in either full or changes only mode. Common practice is to schedule your extracts to run after your regular payroll runs.
Transmit	You can transmit the extract as part of the extract request, or after the requested extract completes and before or after you view the extract details.

4. Click **Submit** to submit your process and return to the Extract Benefits Data page.

Viewing and Transmitting Extract Details

You can view, query, and download extracted records for a specific extract run after it completes. You can also transmit the extract after the requested extract completes and before or after you view the extract details.

1. In the Search Results section of the Extract Benefits Data page, click the **Request ID** for the most recent extract request for the plan carrier.
2. Review, query by example, and download to a spreadsheet the extracted data, as appropriate.
3. Click **Done** to return to the Extract Benefits Data page.
4. In the Search Results section, click the **Transmit** icon button for the most recent extract request.

Related Topics

- [Configure Benefits for Extracting Data](#)

Example of a Custom Layout for Benefits Extract

An implementor or developer can create a custom layout to transform the format of extracted benefits enrollment data to match the specifications of a particular carrier.

This topic provides:

- Descriptions of the tags that you require to create the custom layout
- Table aliases and a sample custom layout

The custom layout becomes the default layout for the plan carrier after you upload it to the plan carrier's extract options.

The following code shows the structure of the XML tags in the custom layout.

```
<Layout
  <Table
```

```

Record Type
<Field
Name
Source
Width
Padding
Field>
Table>
<Table
<Field
Name
Source
Width
Padding
Field>
-----
More fields
-----
Table>
<Table
-----
More tables
-----
Table>
Layout>
    
```

The data source for a field on the custom layout can be a:

- Column on the benefits extract staging tables
- Column on one of the other tables listed in the Source tag description
- Constant into which you enter the exact value

Tip: To identify table column names, you can use the data model query builder in Oracle BI Publisher. Search for the table name and view the columns.

XML Tag Descriptions

This section describes each XML tag and lists its attributes, elements (subtags), and parent tags.

Layout

Description: Root tag.

Attributes: None

Elements (Subtags)	Parent Tag
Table	None

Table

Description: Specifies the database table from which to extract the data.

Attributes: 1. tableName: Supported values = {BEN_EXTRACT_REQ_DETAILS,BEN_EXTRACT_REQUEST, DUAL,PER_ALL_PEOPLE_F,PER_PERSONS,PER_ALL_ASSIGNMENTS_M,PER_PEOPLE_LEGISLATIVE_F,BEN_PL_F,BEN_PL_TYP_F}

Elements (Subtags)	Parent Tag
1. RecordType 2. Field: See Field tag description	Layout

Record Type

Description: Specifies how to delimit or lay out the data in the extract file.

Attributes: Supported values: FIXEDWIDTH, CSV

Note: Anything other than CSV is delimited as FIXEDWIDTH by default.

Elements (Subtags)	Parent Tag
None	Table

Field

Description: Corresponds to one column in the extracted document. Source the text in this column from a database table, an SQL function, or a constant.

Attributes: None

Elements (Subtags)	Parent Tag
1. Name 2. Source 3. Width 4. Padding	Table

Name

Description: Name of the field

Attributes: None

Elements (Subtags)	Parent Tag
None	Field

Source

Description: Specifies the source of data for the current field.

- If the source is a table, the value passed is the column name.
- If multiple tables are involved, use a fully qualified column name.

The list of allowed tables includes the table aliases.

SQL functions in place of column names: Values in this tag are treated as column names if the type is set to TABLE. The column name is used directly while constructing a query, so an SQL function can be used on a column.

- Example 1
`<Source type="TABLE">GENDER_FLAG</Source>`
- Example 2
`<Source type="TABLE">DECODE (GENDER_FLAG, 'F' ,1 ,2)</Source>`

Attributes:

1. type:
 - Supported values = {TABLE, CONSTANT}
 - TABLE specifies that the data comes from a database table.
 - CONSTANT specifies that the data is given in the value column of this tag.
2. table: Use this tag only if the intended column isn't from the table given in the tableName attribute of this Table tag. If this tag isn't used, the column is searched for in the table given in tableName.
 - Supported values:
 - {BEN_EXTRACT_REQ_DETAILS
 - PER_ALL_PEOPLE_F
 - PER_PERSONS
 - PER_ALL_ASSIGNMENTS_M
 - PER_PEOPLE_LEGISLATIVE_F
 - BEN_PL_F
 - BEN_PL_TYP_F
 - BEN_OPT_F
 - BEN_PGM_F

Elements (Subtags)	Parent Tag
None	Field

Width

Description: Specifies the intended width of this field in the extract file. The number passed is the number of character spaces on the file.

Attributes: Supported values are positive integers.

Elements (Subtags)	Parent Tag
None	Field

Padding

Description: Specifies the alignment of data in each column.

Attributes: Supported values: {LEFT, RIGHT}

Elements (Subtags)	Parent Tag
None	Field

Table Aliases

Allowed Table	Alias
BEN_EXTRACT_REQ_DETAILS	REQ
PER_ALL_PEOPLE_F	PEO
PER_PERSONS	PER
PER_ALL_ASSIGNMENTS_M	ASG
PER_PEOPLE_LEGISLATIVE_F	LEG
BEN_PL_F	PLN
BEN_PL_TYP_F	TYP
BEN_OPT_F	OPT
BEN_PGM_F	PGM

Sample XML Layout

```
<?xml version="1.0" encoding="utf-8"?>
<Layout>
<Table tableName="DUAL">
```

```
<RecordType>FIXEDWIDTH</RecordType>
<Field>
<Name>"Record Type"</Name>
<Source type="CONSTANT">001</Source>
<Width>3</Width>
<Padding>Left</Padding>
</Field>
</Table>
<Table tableName="BEN_EXTRACT_REQ_DETAILS">
<RecordType>CSV</RecordType>
<Field>
<Name>"Last Name"</Name>
<Source type="TABLE">LAST_NAME</Source>
<Width>25</Width>
<Padding>Left</Padding>
</Field>
<Field>
<Name>"First Name"</Name>
<Source type="TABLE">FIRST_NAME</Source>
<Width>50</Width>
<Padding>Left</Padding>
</Field>
<Field>
<Name>"Filler"</Name>
<Source type="CONSTANT">XXXXXXXXXX</Source>
<Width>10</Width>
<Padding>None</Padding>
</Field>
<Field>
<Name>"Plan Name"</Name>
<Source type="TABLE">PLAN</Source>
<Width>70</Width>
<Padding>Left</Padding>
</Field>
<Field>
<Name>"Coverage Start Date"</Name>
<Source type="TABLE">COVERAGE_START_DATE</Source>
<Width>15</Width>
<Padding>Left</Padding>
</Field>
<Field>
<Name>"SSN"</Name>
<Source type="TABLE">NATIONAL_IDENTIFIER</Source>
<Width>12</Width>
<Padding>Left</Padding>
</Field>
<Field>
<Name>"Gender"</Name>
<Source type="TABLE">DECODE (GENDER_FLAG, 'F', 1, 2)</Source>
<Width>1</Width>
<Padding>Left</Padding>
</Field>
<Field>
<Name>"Person Number"</Name>
<Source type="TABLE" table="PER_ALL_PEOPLE_F">PERSON_NUMBER</Source>
<Width>30</Width>
<Padding>Left</Padding>
</Field>
<Field>
<Name>"Country of Birth"</Name>
<Source type="TABLE" table="PER_PERSONS">COUNTRY_OF_BIRTH</Source>
<Width>30</Width>
<Padding>Left</Padding>
</Field>
<Field>
<Name>"Assignment type"</Name>
```

```

<Source type="TABLE" table="per_all_assignments_m">assignment_type</Source>
<Width>30</Width>
<Padding>Left</Padding>
</Field>
<Field>
<Name>"Legislation code"</Name>
<Source type="TABLE" table="per_people_legislative_f">LEG.LEGISLATION_CODE</Source>
<Width>30</Width>
<Padding>Left</Padding>
</Field>
<Field>
<Name>"Legislation code"</Name>
<Source type="TABLE" table="ben_pl_f">PLN.PL_ID</Source>
<Width>30</Width>
<Padding>Left</Padding>
</Field>
</Table>
<Table tableName="DUAL">
<RecordType>FIXEDWIDTH</RecordType>
<Field>
<Name>"Record Type"</Name>
<Source type="CONSTANT">999</Source>
<Width>3</Width>
<Padding>Left</Padding>
</Field>
<Field>
<Name>"Record Type"</Name>
<Source type="SYSTEM">RECORDCOUNT</Source>
<Width>3</Width>
<Padding>Left</Padding>
</Field>
</Table>
</Layout>

```


7 Talent Review and Succession Management Data Extract

Guidelines for Extracting Talent Review Data Using HCM Extracts

You can use HCM Extracts to extract Talent Review data.

Here's the data that you can extract with a few examples of the attributes that you can extract for each:

- **Meeting details:** Meeting ID, meeting dashboard template ID, meeting date
- **Facilitators' details:** Facilitator ID, facilitator person number, facilitator creation date
- **Participants' details:** Participant ID, participant business group ID, participant person number
- **Talent pools' details:** Talent pool ID, talent pool meeting ID, talent pool creation date
- **Prior rating details:** Prior rating date range ID, prior rating date range meeting ID, prior rating date range creation date
- **Reviewees' details:** Reviewee ID, reviewee meeting ID, reviewee person number
- **Review content details:** Review content ID, review content meeting ID, review competencies
- **Succession plans' details:** Succession Plan ID, succession plan meeting ID, succession plan creation date

In this topic, we discuss only the information that you need for extracting Talent Review data. For more information about creating an extract definition and publishing the extract results, see the related topics.

Create Talent Review Extract Definition

To create an extract definition, you must determine these details:

- The user entity details to create data groups
- The database item group details to create attributes
- The extract definition type

You create an extract definition using the Manage Extract Definitions task in the Data Exchange work area.

This table lists the Talent Review related user entities and the starting characters of the database items that correspond to these user entities. You can search the Talent Review related database items using these characters.

Talent Review Data to Extract	User Entity	Database Items Start With
Meeting details	HRR_EXT_MEETINGS	HRR_MEETINGS_
Meeting facilitators	HRR_EXT_MEETING_FACILITATORS	HRR_MEETING_FACILITATORS_

Talent Review Data to Extract	User Entity	Database Items Start With
Meeting participants	HRR_EXT_MEETING_PARTICIPANTS	HRR_MEETING_PARTICIPANTS_
Associated talent pools	HRR_EXT_MEETING_TALENTPOOLS	HRR_MEETING_TALENTPOOLS_
Meeting prior rating date ranges	HRR_EXT_PRIOR_RATING_DATE_RANGES	HRR_PRIOR_RATING_DATE_RANGES_
Meeting review population	HRR_EXT_MEETING_REVIEWEES	HRR_MEETING_REVIEWEES_
Meeting review content	HRR_EXT_MEETING_REVW_CONTENT	HRR_MEETING_REVW_CONTENT_
Associated succession plans	HRR_EXT_MEETING_SUCCLANS	HRR_MEETING_SUCCLANS_

While creating the Talent Review extract definition, select the extract definition type as **HR Archive**.

With the information in this topic, you're now ready to extract Talent Review data.

Related Topics

- [HCM Extract Types](#)
- [Filter Extracts Using Advanced Filter Criteria](#)
- [Extract Components](#)
- [Define Extracts](#)
- [Define the BI Publisher Template in HCM Extracts](#)

Guidelines for Extracting Succession Management Data Using HCM Extracts

You can use HCM Extracts to extract Succession Management data.

Here's the Succession Management data that you can extract with a few examples of the attributes that you can extract for each:

- **Plan details:** Plan type, status, incumbent ID, alert information
- **Internal candidate details:** Candidate person number, status, readiness value
- **External candidate details:** First name, last name, employer name, current job title, email address
- **Owner details:** Owner person number, meaning of the owner type code

In this topic, we discuss only the information that you need for extracting Succession Management data. For more information about creating an extract definition and publishing the extract results, see the related topics.

Create Succession Management Extract Definition

To create an extract definition, you must determine these details:

- The user entity details to create data groups
- The database item group details to create attributes
- The extract definition type

You create an extract definition using the Manage Extract Definitions task in the Data Exchange work area.

This table lists the Succession Management related user entities and the starting characters of the database items that correspond to these user entities. You can search the related database items using these characters.

Succession Management Data to Extract	User Entity	Database Items Start With
Plan details	HRM_EXT_PLANS_UE	HRM_PLANS_
Plan internal candidates	HRM_EXT_PLAN_CANDIDATES_UE	HRM_PLAN_CANDIDATES_
Plan external candidates	HRM_EXT_EXTERNAL_CANDIDATES_UE	HRM_PLAN_EXTERNAL_CANDIDATE_
Plan owners	HRM_EXT_PLAN_OWNERS_UE	HRM_PLAN_OWNERS_

While creating the Succession Management extract definition, select the extract definition type as **HR Archive**.

With the information in this topic, you're now ready to extract Succession Management data.

Related Topics

- [HCM Extract Types](#)
- [Filter Extracts Using Advanced Filter Criteria](#)
- [Extract Components](#)
- [Define Extracts](#)
- [Define the BI Publisher Template in HCM Extracts](#)

8 Time Repository Data Extracts

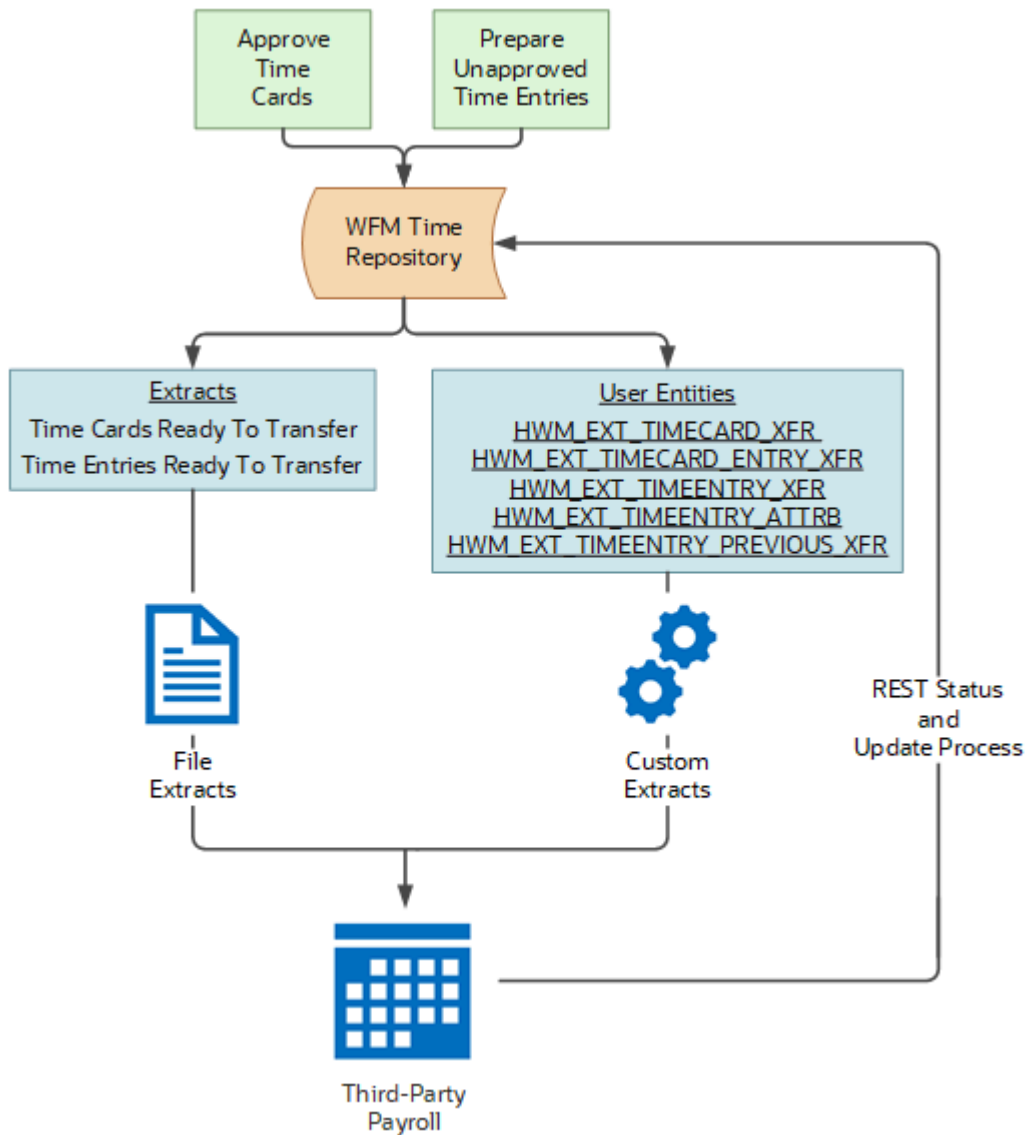
Using HCM Extract: Points to Consider

You can extract time card data from the WFM time repository to load in third-party scheduling and payroll applications. Here's just some data you can extract:

- Schedule and person information
- Dates
- Assignment entries that exist in the time repository
- Hidden derived values, such as primary assignment ID or project unit
- Custom time attributes

For example, you want to transfer approved time data or unapproved but appropriately prepared time entries to a third-party payroll application. Here's what you can do:

1. Extract the appropriate data for payroll processing using either the Time Cards Ready To Transfer Extracts or Time Entries Ready To Transfer Extracts extract. Or you can create your own extracts with the delivered HWM_EXT user entities and database items. Either way, use the **My Client Groups > Data Exchange > Manage Extract Definitions** task and the HR Archive extract type.
2. Load the extracted data in your third-party payroll application.
3. Get the transfer statuses from the external payroll application using the REST Time Records resource, Time Statuses child.
4. Update the time repository statuses for the extracted time cards by running Update Extracted Time Cards from Ready to Transfer to Transferred Process. The statuses change from Ready to Transfer to Transferred after the statusChangeRequests REST service gets the update file.



Delivered Extracts

To extract time repository data, you can use these delivered extracts.

- Published Schedule Extract
- Time and Payroll Info for Reconciliation
- Time Cards Ready To Transfer Extracts
- Time Entries Ready To Transfer Extracts

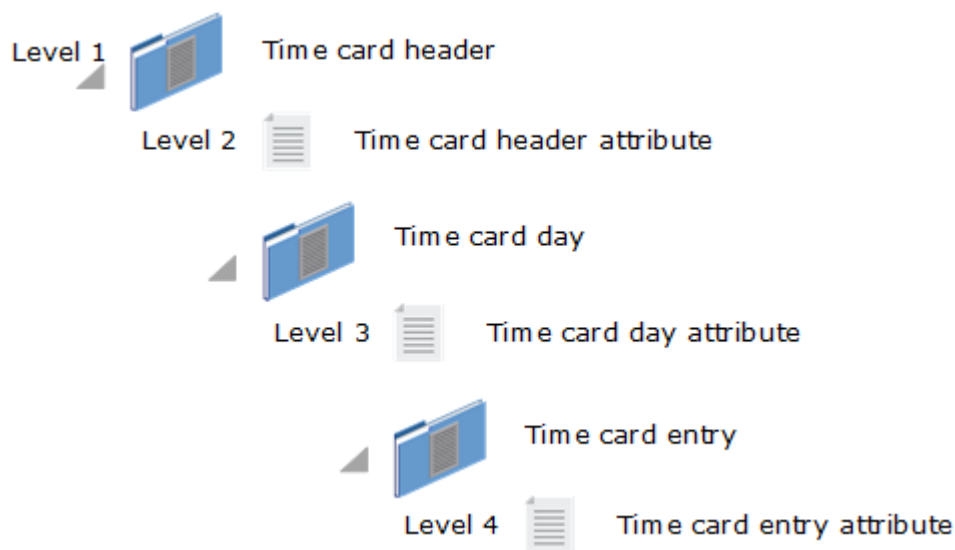
You can also copy the existing extract that's closest to what you need and adjust the copy as appropriate. Or you can create your own extract using the delivered HWM_EXT user entities and database items.

Related Topics

- [Extract Components](#)
- [Define Extracts](#)
- [Update Extracted Time Cards from Ready to Transfer to Transferred Process](#)

Data Groups and Records for the Time Repository

The time repository stores reported and calculated time at various levels of time card details. To keep the relationship among the time card data you're extracting, you configure the data group hierarchy, as modeled here.



Level	Details	Description	User Entities
1	Time card header	A group of hours for a person over the time card period	<ul style="list-style-type: none"> HWM_EXT_CALCULATED_TIMECARD_HDR_UEHWM_EXT_REPORTED_TIMECARD_HDR_UE
2	Time card header attribute	Additional information that applies to the entire time card period, such as a comment explaining why the person submitted their time card late.	<ul style="list-style-type: none"> HWM_EXT_CALCULATED_TIMECARD_ATTRIBUTE_HDR_UEHWM_EXT_REPORTED_TIMECARD_ATTRIBUTE_HDR_UE
2	Time card day	A 24-hour period of the time card, such as Monday, Tuesday, or Wednesday	<ul style="list-style-type: none"> HWM_EXT_CALCULATED_TIMECARD_DAY_UEHWM_EXT_REPORTED_TIMECARD_DAY_UE
3	Time card day attribute	Additional information that applies to a 24-hour period of the time card, such as a comment applicable to all hours for Monday	<ul style="list-style-type: none"> HWM_EXT_CALCULATED_TIMECARD_ATTRIBUTE_DAY_UEHWM_EXT_REPORTED_

Level	Details	Description	User Entities
			TIMECARD_ATTRIBUTE_DAY_UE
3	Time card entry	A range of time defined by start and stop times or a time duration on the time card	<ul style="list-style-type: none"> HWM_EXT_CALCULATED_TIMECARD_DETAIL_UE HWM_EXT_REPORTED_TIMECARD_DETAIL_UE
4	Time card entry attribute	Additional information that applies to a time entry, such as the project name, payroll time type, and department	<ul style="list-style-type: none"> HWM_EXT_CALCULATED_TIMECARD_ATTRIBUTE_DETAIL_UHWM_EXT_REPORTED_TIMECARD_ATTRIBUTE_DETAIL_UE

The time repository has other user entities that're independent of these hierarchy levels. To find all time user entity and database items, search for names that start HWM_EXT.

Extract Refinement

To create filter conditions that refine the extract contents, you can use available database items. Here are some examples:

- Status values, such as time card status, approval status, or transfer status
- Time consumer, such as project costing or payroll
- Selected time attribute values, including custom time attributes
- Calculated time, reported time, or both types of time entries
- Person name or assignment
- HR attributes that you can use to identify the person or assignment values, such as Department, Job, Position, and Manager. For example, all people with Job = X
- Date and date ranges, for example, the effective date minus start date of the time card is less than 90 days

Related Topics

- [Extract Components](#)
- [Define Extracts](#)

Published Schedule Extract

To extract published WFM schedules, you can use the Published Schedule Extract extract, which has these parameters:

- Assignment Number
- Effective Date
- Person Number
- Start Date

It also includes this two-level group hierarchy.

Level	Object Name	Description	User Entity
1	HWM Assignment	The extract block that holds the assignment records.	HWM_EXT_PERSON_ASSIGNMENT_UE
2	HWM Published Schedule	Extract all the published schedule shifts, for a given period and a given person or assignment, including those shifts that overlap an absence.	HWM_EXT_PUBLISHED_SCHEDULE_ALL_UE

Time Entries Ready To Transfer Extracts

To extract unapproved but appropriately prepared time entry data for transfer to a third-party payroll application, you can use the Time Entries Ready To Transfer Extracts extract. The extract includes these parameters:

- Assignment Number
- Consumer
- Effective Date
- From Approval Date
- LDG or Business Unit
- Person Number
- Start Date

It also includes this two-level group hierarchy:

Level	Object Name	Description	User Entity
1	Time Entry Ready To Transfer	A range of time defined by start and stop times or a time duration on the time card	HWM_EXT_TIMEENTRY_XFR_UE
2	Time Entry Attributes	Additional information that applies to a time entry, such as the project name, payroll time type, and department	HWM_EXT_TIMEENTRY_ATTRB_UE

Extract Transferred Entries with Adjustments

To include previously transferred time entries that got adjusted later, you can copy and adjust this extract. Here's an example of how you can add the code to the copied extract definition:

```
----- HWM_EXT_TIMEENTRY_PREV_XFR_UE (new UE - previous time entry transferred)
----- HWM_EXT_TIMEENTRY_ATTRB_UE (existing UE - current attributes)
```

You can link the HWM_EXT_TIMEENTRY_PREV_XFR_UE user entity to the existing HWM_EXT_TIMEENTRY_ATTRB_UE user entity by Time Record Group Id, Version, and Time Consumer.

These user entities include the database item (DBI) that identifies the time consumer:

- HWM_EXT_TIMEENTRY_XFR_TCSMR_CODE
- HWM_EXT_TIMEENTRY_PREV_XFR_TCSMR_CODE

The extract uses the DBI to link a group hierarchy level to the next lower level (n and n-1). The DBI also filters the levels for the same time consumer code.

Submit Extract Instance Process

You don't have to select a consumer if your extract definition includes the user entities with the time consumer DBI.

- If you leave the Consumer field blank, the process extracts time entry data for all time consumers.
- If you select a time consumer, the process extracts data associated with only that time consumer.

Time Cards Ready To Transfer Extracts

To extract approved time card data for transfer to a third-party payroll application, you can use the Time Cards Ready To Transfer Extracts extract. The extract includes these parameters:

- Assignment Number
- Consumer
- Effective Date
- From Approval Date
- LDG or Business Unit
- Person Number
- Start Date

It also includes this three-level group hierarchy:

Level	Object Name	Description	User Entity
1	Time Card Ready To Transfer	A group of hours for a person over the time card period	HWM_EXT_TIMECARD_XFR_UE
2	Calculated Time Card	A group of hours calculated from reported time, for a person over the time card period	HWM_EXT_TIMECARD_ENTRY_XFR_UE
3	Time Entry Attributes	Additional information that applies to the calculated time entry, such as the project name, payroll time type, and department	HWM_EXT_TIMEENTRY_ATTRB_UE

Extract Transferred Entries with Adjustments

To include previously transferred time card and entries that got adjusted later, you can copy and adjust this extract. Here's an example of how you can add the code to the copied extract definition:

```
----- HWM_EXT_TIMEENTRY_PREV_XFR_UE (new UE - previous time entry transferred)
----- HWM_EXT_TIMEENTRY_ATTRB_UE (existing UE - current attributes)
```

You can link the HWM_EXT_TIMEENTRY_PREV_XFR_UE user entity to the existing HWM_EXT_TIMECARD_ENTRY_XFR or HWM_EXT_TIMEENTRY_PREV_XFR user entity by Time Record Group Id, Version, and Time Consumer.

These user entities include the database item (DBI) that identifies the time consumer:

- HWM_EXT_TIMECARD_XFR_TCSMR_CODE
- HWM_EXT_TIMECARD_ENTRY_XFR_TCSMR_CODE
- HWM_EXT_TIMEENTRY_XFR_TCSMR_CODE
- HWM_EXT_TIMEENTRY_PREV_XFR_TCSMR_CODE

The extract uses the DBI to link a group hierarchy level to the next lower level (n and n-1). The DBI also filters the levels for the same time consumer code.

Submit Extract Instance Process

You don't have to select a consumer if your extract definition includes the user entities with the time consumer DBI.

- If you leave the Consumer field blank, the process extracts time entry data for all time consumers.
- If you select a time consumer, the process extracts data associated with only that time consumer.

Time and Payroll Info for Reconciliation

To reconcile worked time with paid time, you can use the Time and Payroll Info for Reconciliation extract.

The generated file data compares time reported in Oracle Fusion Cloud Time and Labor with time paid in Oracle Fusion Cloud Global Payroll. A difference of 0 signifies that the hours reconcile, while a negative difference signifies that some hours didn't transfer to payroll. The extract includes time cards that cross the current payroll period. You can also include old time cards retroactively adjusted during the current period. And you can see people who need to submit time cards, who are missing time cards.

The extract includes these parameters:

- Department
- HCM Group
- Include retroactive updates made after this pay period starts
- Location
- Payroll Name
- Payroll Period

It also includes this two-level group hierarchy.

Group Hierarchy Levels

Level	Object Name	Description	User Entity
1	Person and Assignment Details for Reconciliation Data Group	Person and assignment details for the specified reconciliation data group	ORA_HWM_PERSON_ASSIGNMENT_DETAILS_UE
2	Time and Calculation Card Details for Reconciliation Data Group	Time card and payroll calculation card details for the specified reconciliation data group.	ORA_HWM_TIME_CARD_CALCULATION_CARD_SUMMARY_INFO_UE